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Tea Plant.



THE
NATURAL HISTORY
OF THE
TEA-TREE,
WITH
OBSERVATIONS
ON THE
MEDICAL QUALITIES of TEA,
AND
EFFECTS OF TEA-DRINKING.

By JOHN COAKLEY LETTSOM, M.D. F.S.A.

Ad utilitatem vitæ omnia consilia factaque nostra dirigenda sunt. TACIT.

L O N D O N :

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M DCC LXXII.

TO THE
D U K E
O F
NORTHUMBERLAND,

THE FOLLOWING
T R E A T I S E
IS,

WITH PERMISSION,
RESPECTFULLY INSCRIBED

BY
THE AUTHOR.

loss, but had he been, he should have used Mr. Wilkinson's ointment, which consisted of equal parts of sulphur, tar, and lard. The hydro-sulphuret ammonia was also one of the ingredients prescribed in that ointment, but he (Mr. G.) thought that it was not only an unnecessary addition, but one which made an abominable stink in the composition. This ointment, he had never known to fail in porrigo decalvans, where used perseveringly. The hair might reappear in a fortnight, and then fall off afresh, when the remedy should again and again be resorted to, and thus, in his hands, it had always been successful.

Mr. CLIFTON thought that the merit of Mr. Wilkinson's ointment was due to the sulphur alone, and that the great majority of such cases might be cured simply with sulphur. He had found a union of sulphuric acid and lard, twenty drops to an ounce, as beneficial, or more so, than the sulphur ointment. He had also found equal parts of camphor, rubbed down with spirits of wine, and the unguentum hydrargyri, a very useful combination. In stables, where broken knees were frequent, it was common to apply a mixture of gunpowder and lard, and often with advantage, to the denuded skin. He would take occasion to remark, that gentlemen, the knees of whose horses were broken, would find the common mercurial ointment and camphor a better remedy. In Mr. Diamond's case he doubted, since the skin of the head was of a shining texture, if anything would be of service; though, indeed, it was said of the "macassar oil," that it would convert deal-boxes into hairy trunks, and bristle polished walking-sticks.

Dr. WHITING said he had often used the stimulating essential oils, that of cloves for instance, and the citron ointment, with great advantage. If the glands at the root were gone, it was useless to employ anything, but if they yet remained, the reproduction of the hair only required stimulants. Mr. Diamond should try these on the scalp first, and if successful there he might proceed downwards, though he doubted if hair was of use anywhere else.

The PRESIDENT. Then don't try it on the lower-jaw, Sir, lest the beard appear again. (*A laugh, and general rubbing of chins. When the rustling had ceased*)—

Mr. GOSSETT considered that if the essential oils would effect this object, they would soon drive sulphur from the field by the force of the fragrance, but he doubted the power ascribed to them. The "Balm of Columbia," *et hoc genus omne*, were stimulating, but they did not succeed in restoring the fruitfulness of bald scalps.

Dr. WHITING did not mean that the oils were always, but only very often, successful. He had also used the unguent. hydrarg. nitratis, as a stimulant, but not so as to produce inflammation, with repeated success in *porrigo decalvans*.

Mr. GOSSETT. As it would require a long course of application, I should be afraid to try any preparation, containing mercury. According to my experience, parents almost always try stimulants before bringing their children for professional treatment.

Mr. COLE recommended to Mr. Diamond the daily use of the vapour-bath.

The PRESIDENT. I may take the opportunity of mentioning, that in cases of herpetic ringworm I have rubbed the black ointment which Mr. Guthrie dabs with success into the eyes of most persons who come to him, and cured the complaint. A cuticular desquamation has followed the application, and there has been no return of the disease.

Mr. GOSSETT said, that the remedial effects of local applications to the head were frequently prevented, by washing the head so often, that the remedies were removed before they could act. They should be washed but twice a week,

keeping the head cool, and getting rid of the heating and injurious oil-skin cap which was generally worn by patients of that description, substituting for it—if they must hide the head—the skull-cap. (*A pause.*)

Dr. WHITING. I trust that the subject will not be wholly dropped. Skin diseases are not brought forward so often as they ought to be in the medical societies.

The PRESIDENT. Why if medical gentlemen wish to get into favour with the ladies, they cannot do better than learn successful modes of treating cutaneous maladies.

Dr. WHITING. There is one complaint on which I am very anxious to obtain information. What is the best treatment of the chronic form of *eczema rubrum*,—one of the most common diseases in practice, both amongst children and adults,—and a very distressing one—keeping the patient awake at nights by its irritation, tempting to perpetual scratching, disfiguring the face by scabs, and in some instances resisting every means of cure which I have employed? I think it is a constitutional disease, and not merely a local one. The acute form is much more easy of cure. I have found small doses of tartarised antimony, from the fifteenth to the tenth of a grain every three hours, with frequent warm ablution, the best means of those which I have hitherto tried in this affection.

Mr. GOSSETT. When it is a rash, I should merely employ a cooling internal treatment; when it is scabby, I would use the linseed oil and lime water. (Mr. G. also spoke highly of the decoctum dulcamara in such cases, and the use of warm-baths.)

Dr. WHITING. I have found the decoc. dulcam. alleviate the disease, but not cure it. Of all common diseases this one puzzles me the most.

The PRESIDENT.—In very obstinate cases, the oxymuriate of mercury has been very useful with me,—the one-eighth or one-tenth of a grain for an adult.

Dr. WHITING. I have tried moderate doses of mercury with a great aggravation of the disease, though certainly less doses might have been useful. With regard to warm-bathing, I am always loath to direct it, because if it be not used with the greatest delicacy and nicety, it does harm instead of good. It should always be made to feel cool to the irritated and heated surface, and then it will secure a good night's rest to the patient, suspending for a time the morbid action of the skin. If you can be assured of the discretionary use of the bath, it may be rendered an advantageous accessory to internal remedies, but not else.

Mr. CLIFTON. In chronic cases, I have found alterative doses of mercury very useful.

Mr. BURT. Has Dr. Whiting ever tried the hydrocyanic acid?

Dr. WHITING. Yes. Sometimes with good effect, and sometimes without.

The PRESIDENT. Have you ever painted the surface with the tincture of iodine?

Dr. WHITING. I have, and uselessly. I have also tried the nitrate of silver, and many other such remedies, all without benefit in some cases.

Mr. ROBERTS. I had a case in which the black-wash cured the disease in a month.

The PRESIDENT. The suggestion may be useful. We all know that the black wash will sometimes act like a charm upon ulcers.

The hands of the clock were at half-past nine, so with a hope from the President that as the next evening was the last of the session, the attendance would be very large, the meeting adjourned.

ON THE DELETERIOUS EFFECTS PRODUCED
BY DRINKING TEA AND COFFEE IN EXCESSIVE
QUANTITIES.

June [By JOHN COLE, Esq.] 1833

THE circumstances that seem to favour the production of the deleterious effects of tea, are all such as lower the tone of the constitution from the healthy standard, as fatigue, sickness, loss of blood, &c.

Tea seems also to have the power of reducing the constitution, when taken for a long time in excessive quantity, to that state in which it becomes accessible to its deleterious influence. A longer or shorter time after taking the beverage, from a few minutes to two or three hours, an uncomfortable feeling arises in the stomach; a craving, sinking, emptiness, which soon acquires a degree of intensity that is almost insupportable; the hunger-like gnawing and craving are described as to the last degree painful to bear. The stomach being full, has no effect in preventing its accession; neither does eating relieve it. This is often all that is felt for a long time, but by degrees, a fluttering, as of a bird, in the left side, is superadded, and a feeling of fulness pervades the chest with breathlessness, and deep and frequent sighing. The fulness is more especially felt about the clavicles and root of the neck.

When black tea, or coffee, has been taken, considerable excitement often ushers in this succession of phenomena; the face becomes flushed, the eyes sparkle with an unusual brilliance, all the earlier effects of intoxication from alcohol are observable; the pulse being full and throbbing, and considerably quickened. If green tea have been taken, the previous excitement is less, or perhaps not at all perceptible; the skin soon becomes pale, the eyes are sunken, the pulse feeble, quick, and fluttering, or slow and weak.

Whichever may have been taken, in the progress of the affection the hands and feet often become cold as marble, and bedewed with a clammy sweat. Efforts to warm them are made in vain, even in the hottest weather; a feeling of coldness and numbness also invades the back part of the head.

The symptoms here enumerated may be considered as strictly diagnostic of the affection; for, whatever others are present, the sinking empty feeling at the stomach, and the fluttering in the side, are never absent. In stating this, I am fully aware that these symptoms are considered as indicative of dyspepsia; but I am persuaded, that it will almost universally be found, that it is only when tea is taken that they are felt at all; and that, if the tea be discontinued, they will speedily disappear, without the aid of medicine; while, if the use of it be persisted in, they will often resist the efficacy of the most skilful treatment.

This is the milder form of the disease (if I may so term it),—the one which is most commonly seen; but occasionally a variety of aggravated symptoms arise. To the coldness and benumbed feeling of the back of the head, there is added formication of the scalp, violent pain in the head, dimness of the sight, unsteadiness in walking, vertigo, and these are accompanied by a feeble fluttering pulse. To the feeling of fulness of the chest and about the clavicles, are added, threatening of suffocation, insensibility, and convulsions. The sufferings felt in the stomach are aggravated to violent spasm. The fluttering of the heart becomes pain,—violent palpitation, or enfeebled action, bringing on syncope. I may add here, that the mind does not escape, but partakes of the disorders of the body, as is seen by the temper becoming peevish and irritable, so as to render the sufferer a torment to himself, and all those about him.

Having thus given a general idea of the symptoms which indicate the injurious effects of tea, I shall now detail some cases in illustration, each one of which I wish to be considered as representing a group in which similar symptoms will be observed.

CASE I.

Pain at Stomach after Eating, and rejection of Food, will be found to be of rather frequent occurrence.

A female servant about 35 years of age, complained of pain after eating, with sinking and emptiness of the stomach, and so great a feeling of faintness, that she was scarcely able to go about. After she had suffered in this way a short time, a fluttering in the left side came on, with a sense of fulness about the clavicles. She generally vomited the meal which she had lately taken. Her bowels were regular, her appetite good; she was in every other respect well. Recognising at once the effects of tea, and desirous of convincing her, as well as myself, that I was correct, I desired her to desist from taking any for the next three days, and to take milk-and-water, or weak ginger-tea, in its place, prescribing no medicine. By the third day she had no remnant of her complaint.

Remarks.

This is rather an aggravated form of the affection as it appears most frequently, there being in the greater number of cases neither positive pain of the stomach nor vomiting.

When it attains that degree only in which neither pain nor vomiting is present, the symptoms are immediately relieved by a glass of spirits, or any other active stimulus, and thus, nine times out of ten, the destructive habit of dram-drinking is acquired. There can hardly be a medical practitioner in London who has not frequently heard the exclamation, "I can't do without a glass of gin about eleven o'clock, I have such a gnawing in my stomach." If the tea had not been taken, the gin would not have been required.

CASE II.

The Effects generally supervene on some Acute Disease, and the Patient cannot always, as this one did, point out the Tea as the cause.

Mrs. R., a married woman, aged 40, without children, generally enjoying good health, although rather disposed to nervous affections, was recovering from a smart attack of catarrhal fever, when, one morning, about half an hour after taking her usual breakfast, consisting of tea and bread-and-butter, she was seized with a great sense of sinking and oppression at the stomach. She was seen in a quarter of an hour from the first seizure. She was tossing about, groaning loudly with every breath, occasionally rubbing her stomach with great violence, and exclaiming that she must die unless speedily relieved. There was no fulness or tenderness on pressure. She described the pain as a dull aching benumbed feel, with an extreme sense of sinking and oppression, which latter it was that alarmed her so much. There was a wild and distressed expression of countenance; the face was much flushed; the pulse was quicker and stronger than it had been in the course of her illness. Her tea (which was black) had been accidentally made stronger than usual, and she had drunk more than she was accustomed to do. The last cup was scarcely swallowed before the sinking came on, and it increased in violence so rapidly, that in half an hour after her drinking it, her distress was extreme. A bladder of hot water to the stomach, and a draught with camphor and ether, quickly brought her relief; but her convalescence was considerably protracted by the increase of the debility attendant on her previous illness.

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ns; I was with him in a few minutes after the attack. Muscles of the limbs were principally affected, the face flushed, and the pulse was full and quick. The convulsions ceased soon after the taking a stimulant, but he remained weak through that and the following day. On the second day from the attack, he was well enough to walk a considerable distance on business. He returned from his journey just as the family had done drinking tea, and being thirsty, he drank off half a cup of tea that had been left on the table, the first he had taken since the attack. Before an interval of an hour had well passed, he fell from his chair in convulsions, which were more violent than he had experienced in his former seizure. A repetition of the remedies were found successful soon relieved him.

The tea he had drunk before the first fit, was by accident much stronger than usual. It was black tea. In the present instance, a much smaller quantity was required to produce the deleterious influence. This is in perfect accordance with my every-day experience, it being almost always observed, that those who have suffered from the injurious effects of tea in a severe degree, are afterwards made ill by a small quantity.

I have at this time a lady under my care, who is a devoted slave of the tea-pot, and who is always suffering in a greater or less degree from the bad effects of her favourite beverage. More than once she has had severe cough and expectoration, which have ceased immediately on her leaving tea.

I abstain from giving cases of the slighter affection, of which the first case is an aggravated example, from the belief, that after what has been said, there will be no difficulty in recognising them.

Reviewing the facts here offered, it will be seen that the stomach is the first to experience the deleterious influence, as is evidenced by the craving, sinking, empty feeling, with which it is affected; next, the heart is felt to flutter and palpitate; then there seems to come on a difficulty about the large bloodvessels; a fulness is felt about the clavicles. Lastly, the influence extends to the brain, producing insensibility and convulsions; but the heart is the organ whose functions are most constantly and most seriously disturbed.

As regards treatment, but little need be said; it being evident from the cases related, that the most important part is the abstaining from the cause. During the paroxysm, stimulants are all in all.

I could extend the number of cases, so as to form a body of evidence, whose force it would be difficult to resist. Those I have brought forward are, I think, sufficient to excite considerable doubt as to the harmless qualities of

“The cups which cheer but not inebriate.”

If it be true, as it has been held, that the continued disturbance of the function of an organ, will induce change of structure, what are we to expect from the use of tea twice a day, when it deranges the function of the heart for three or four hours after each time of its being taken? If the answer be, that it may be expected to induce some structural disease, there arises this other question,—May not the greater prevalence of cardiac disease of late years have been considerably influenced by the increased consumption of coffee and tea?—*Lancet*.

ALLEVIATION OF PAIN IN THE GOUT.

THE application of carded cotton to burns and scaldings is now so generally approved, that most families have it

lying by them ready for use; and in this shape it is sold in the shops. About a twelvemonth ago a gentleman in this city, while writhing under the gout, read in the newspapers some instances of the success of this article in burns, and it struck him that it might operate with equal advantage upon his burning toe. He accordingly got his foot swathed in carded cotton, and in twelve or fourteen hours the inflammation disappeared, and the pain along with it. He has had several threatenings of a return since; but the cotton is immediately had recourse to, and to it he ascribes the speedy removal of the pain. To say that this application will afford similar relief to all persons, or even at all times to the same person, would be quackery; but it certainly appears to be a harmless experiment in an excruciating ailment.

HOT LEG-BATHS.

THE effect of hot water to the lower extremities on the general circulation, was strikingly exemplified in the case of an old gentleman subject to attack of violent palpitation, with a feeling of approaching dissolution. I found him one day in one of those paroxysms. It had lasted many hours, and a fatal termination was expected, as the usual remedies had been tried in vain. By the use of a pediluvium as hot as he could bear it, the affection ceased in a few minutes, and he took some nourishment, slept, and arose quite recovered.—*Dr. Graves*.

USE OF PHRENOLOGY.

THE following singular application of phrenology, in the medico-legal investigation of a murder, has recently taken place in Paris.

Several years have elapsed since a female disappeared from her house in the Rue Vaugirard, and no information respecting her was obtained until a very short time since, when an intercepted letter led to a search for her body in the garden at the back of the house. A skeleton was there found, and a minute examination of it was directed by the police to be made. M. Dumoutier, professor of phrenology to the society at Paris, was, accordingly sent for one evening by M. Orfila, without being told the object of the mission. Introduced into a room where were assembled the Procureur du Roi, municipal guards, agents of police, the suspected persons, and others, M. Dumoutier was desired to determine whether the bones presented to him all belonged to one and the same individual of the human species, and to state his opinion of the sex and age of the individual to whom they belonged, and the period of time that the bones had been interred.

Having examined the skeleton with attention, and put aside some bones of animals, which had been mixed with them, he carefully scrutinised the head, and decided that the skeleton had belonged to a woman, that she was advanced in age, and that the body had been interred several years. But the surprise of the spectators was at its height when the physician, continuing his remarks, commenced to speak of the character of the person whose skull he held in his hand, declaring that she was miserly, and of a violent temper, and adding other details, all of which were perfectly conformable with the known temper and character of the missing woman.

But two centuries ago, as the Crown Solicitor observed, a

ON THE DELETERIOUS EFFECTS PRODUCED BY DRINKING TEA AND COFFEE IN EXCESSIVE QUANTITIES.

[By JOHN COLE, Esq.]

(Concluded.)

CASE V.

The Heart was here affected with Pain, accompanied by violent action.

A female servant, 25 years of age, in florid health, drank tea on Sunday afternoon, (August 11th, at her mistress's in that stat Covent-garden,) and set off to Deptford. Having missed the influenc coach, she walked the whole distance, five miles, with as rage, fr much rapidity as she could. She found her friends at tea, fortale which induced her to take it again; but she had not swal-emptine lowed it long before she was seized with violent palpitation, almost i and considerable pain in the region of the heart, with great are des breathlessness on the least attempt at walking. She slept stomac very ill through the night from being unable to breathe in a neither horizontal position.—12th. In the morning, she came to for a lo town by the coach. When she was first seen, she walked or the left rather crept to my house, a distance of about eighty yards, the ches and was so completely breathless when she came in, that it The ful was necessary for her to sit for at least ten minutes before root of t she could speak. The pulsations of the heart were so vio-

When lent as to be very visible. She complained of considerable excitement pain from its beating, also of great fulness about the clavicles, the face with a feeling of suffocation. Her pulse was expanded, and brilliant beat 120 in a minute.—13th. The sense of suffocation re-are obse lieved, but the palpitation and pain, and inability to exert siderably herself, were much as before.—14th and 15th. No relief.—previous 16th. The pains less, but the palpitation continued unabated the skin in its violence. It was now discovered, that she had con-feeble, qtinued to drink tea, night and morning, as before the attack,

Which from some misunderstanding of the directions she had re-affected ceived. She was now directed to take no more, and on the and bede 18th she was free from pain, and the heart had nearly are made regained its accustomed tranquillity. On the following day coldness she was well.

CASE VI.

In which Syncope was produced by Green Tea.

The s strictly d Mr. M., an author by profession, very robust, and in the present, t prime of life, suffered from an affection of the kidneys. On its being proposed that he should be cupped on the loins, he expressed a strong objection to it, stating, that he was apt to faint after losing blood. However, as I thought the bleeding of importance, he complied, and about twelve ounces of blood were obtained. Not understanding why he should faint long after the abstraction of blood, I requested that I might be sent for if he should do so on the present occasion, and accordingly, in the afternoon, I was summoned. As he lived immediately opposite to me, I was with him without loss of time. I found him lying on a sofa, his lips and countenance blood- less, his skin bathed with a cold, clammy, moisture, and his pulse so slow and feeble as scarcely to be felt. He was but just able to speak. A stimulant, consisting of ammonia and ether, having been administered, he gradually regained his strength, but was not himself the whole evening. He was cupped about three o'clock, and felt nothing unusual from it; he dined as usual, and was very well till about half an hour after taking his tea, of which he drank a large quantity, made very strong, and of the green kind.

This occurred a second time on his being again cupped, with precisely similar circumstances.

It was ascertained afterwards, that he was formerly very subject to fainting,—at a time when he was engaged as a parliamentary reporter, when he was up the greater part of

the night, seldom getting to bed before six or seven o'clock in the morning. He used to rise about noon, and employed himself until the time when it was required for him to go to the House, in reading and writing; with the tea apparatus constantly by his side; and it was not unusual for him to continue drinking very strong green tea for five or six hours together. During the time he pursued this course, it commonly happened two or three times a week that he was found in a state of insensibility on the floor.

CASE VII.

In which sudden attacks of Insensibility occurred after drinking Black Tea.

Mrs. T., aged 35, the mother of several children, had always been very healthy. On making application to me relative to her approaching confinement, she stated, that she had for some time been under the care of the physicians at the dispensary, on account of fits of insensibility, to which she had been subject for some months past. The attacks had come on in the evening, and she had been attended several times by the physicians, for three and four hours at a time, before they could recover her. She had been bled in the arm and cupped repeatedly. A week rarely passed without her being so affected, and she was apprehensive of bad consequences from this complaint at her approaching confinement. I was led to believe that this affection was produced by tea, from its always attacking her in the evening, from its not yielding to the depletory plan of treatment, which would seem to be suggested by the appearances which had been usually observed to attend the effects of black tea, and from its frequent recurrence. She discontinued the use of tea, no medicine was given, and she had no return of the complaint. I should add, that she had for a very long time soon after taking tea, both morning and evening, felt the sinking and craving of the stomach, with the fluttering in the left side.

CASE VIII.

Headach is the next affection that claims notice, according to the arrangement I have adopted.

A man between 40 and 50 years of age, a shopman in a fruit warehouse, had been afflicted for a long time with a severe headach, for which he had been repeatedly bled, and had taken a variety of remedies prescribed by different physicians, without experiencing any relief.

The pain was almost constant, but liable to aggravation about the middle of the day, and in the evening. He had numbness at the back of the head, which extended by degrees over the whole head, with aching and throbbing, an unsteadiness on walking, a sense of sinking and emptiness at the stomach, a fluttering of the heart, and a coldness of the hands and feet at all seasons; the latter symptoms always preceeded an increase of the affection of the head.

He was in the habit of drinking coffee two or three times in the course of the morning, and again in the afternoon. He was directed to discontinue the use of coffee, and in a week all the affection of the stomach and heart had ceased, and the pain in the head had become much ameliorated. Valerian was now prescribed in doses of a scruple three times a day, and in ten days he was quite recovered.

CASE IX.

Convulsions occasionally occur.

Mr. S., aged 22, who had enjoyed excellent health up to the present time, was seized with bleeding at the nose; it had troubled him for two or three days, and on the night previous to the attack he had lost about a pint of blood. About half an hour after breakfast, he was seized with con-

This was the first case that came under my notice. I was lately called to a woman, the fourth day after child-birth, affected in this way. She had imprudently taken scarcely anything but tea from the time of her delivery. Her alarm from the feeling of suffocation and sinking at stomach was so great, that she summoned me at six o'clock in the morning.

CASE III.

Severe Spasms of the Stomach is another form in which the deleterious effects of Tea are seen.

An unmarried female, about 30 years of age, had for upwards of twelve months suffered from frequent attacks of spasm of the stomach; any slight exertion would suffice to bring on the attack, so that she could scarcely walk out without being seized with it. On the occasion of my being called to her, the spasm came on as she was walking along the street, so violently, that she became unable to support herself. She was taken up and carried into the shop of a chemist, which was near at hand, where I saw her. She was suffering under the severest form of spasm of the stomach. A considerable time elapsed before she was able to swallow, but at length a tolerably large dose of laudanum and ether was got down, and she became relieved. I then inquired into the history of her complaints, from which I was led to believe that it was solely occasioned by tea. She had the sinking, craving, fluttering, feelings, so often described, and the violent spasms I had witnessed, besides.

No medicine was prescribed, she left off tea; she had no return of the spasms or other feelings for some weeks, when she took a single cup of tea, and had a slight attack almost immediately afterwards. She was in the habit of using green tea, and of drinking it very strong, and a great deal of it.

CASE IV.

The Functions of the Heart are sometimes much disturbed.

Priscilla A., a healthy servant maid, aged 30, of spare habit, suffered from a very slight attack of scarlatina simplex, which confined her to her room but two days, so that she was perfectly well in a week. About a fortnight afterwards, she complained that she could not sleep at night for a violent pain on the inside of her arms, above the elbow, which awoke her after she had been asleep about half an hour; she also felt a tightness across the upper part of the chest, which obliged her to sit upright in bed. She was unable to go up-stairs, without experiencing great breathlessness, and palpitation of the heart; her pulse was quick, small, and feeble; her appetite and digestion good; her bowels were regular. She took digitalis and colchicum for a fortnight, without benefit, when the power of tea to affect the heart suggested itself. She was accustomed to drink very largely of green tea of unusual strength. This was now left off, and in three days she lost all complaint.

(To be continued.)

It is supposed by some to depend on a specific contagion; some deny this, but others assert it. I was always taught that this was its source, and I never thought of doubting it; but others have done so, and I suppose they have a reason for it.

Any irritation whatever will provoke a paroxysm when a patient has the disease. If a child be put in a passion, or you move it about quickly, or give it anything stimulating, then a paroxysm will take place. There may be various exciting causes of a paroxysm, although the peculiar exciting cause of the disease, I presume, is only one—either a specific contagion or something peculiar.

When a child vomits, it is generally considered a good sign. If there be no vomiting with the cough, it is observed by those who have most experience that the child gets worse. Dr. Gregory knew a lady who never hooped in the disease, and therefore it was hardly whooping-cough, but she always fainted. The disease prevailed in the family, and she had as violent a cough as the rest, but at the time she ought to have hooped, she fainted.

Danger in proportion to other Symptoms.

The danger is in proportion to the other symptoms—that is to say, the affection of the head, and the symptoms of bronchitis and peripneumonia; and of course there is more danger the younger the child is. It is a very dangerous disease when it occurs in infants. Those who suppose that the disease arises from contagion, consider that it is latent, from a few days to a few weeks; and they suppose that the disease itself, when it occurs in an individual, is not capable of communicating contagion beyond a month or six weeks, just as is the case with other contagious diseases. Gonorrhoea, for example, after a certain lapse of time, although nobody will venture to fix the period, is not contagious.

Treatment.

The treatment of whooping-cough is two-fold—as it respects the inflammatory condition of the parts, and the spasmodic.

As it respects the Inflammatory State.

The most important thing by far is to remedy the inflammatory state—the bronchitis or peripneumonia. If it be found that there is a constant oppression of the breathing, with spasmodic attacks, and a violent cough at times, an accelerated pulse, together with pyrexia, sonorous, sibilous, and crepitous rattle, it will be evident that there is inflammation of the bronchiæ or the substance of the lungs—the lobes, or the air-cells, or both; of course that must be remedied in the usual way. You might give all the antispasmodics, all the narcotics, and all the medicines that are supposed to have a direct influence over spasm, and yet do no good; in fact, you would make the patient worse, and if nature were not to get the better of you, and cure the individual, there is every probability that great mischief would be done. It is therefore highly important to ascertain the existence of inflammation, and remedy it, if possible, in the usual way—by taking blood from the neighbourhood of the chest, occasionally by bleeding in the arm, if the patient be old enough, but particularly by local bleeding, the exhibition of mercury and

P R E F A C E.

TH E subject of the following essay being now in general use among the inhabitants of this kingdom, as well as in many other parts of Europe, and constituting so large a part of commerce, I imagined it would afford no small degree of pleasure to the curious to have some account of the natural history of a shrub, with the leaves of which they are so well acquainted.

Many treatises have been published on the uses and effects of Tea; a few writers have likewise given some circumstances relative to its natural history and preparation, the indefatigable Kæmpfer particularly: but these circumstances lie so dispersed, and the accounts which have been given of the virtues and efficacy of Tea, are in general
so

so contradictory, and void of true medical observation, that it seemed no improper subject for a candid discussion. The reader will at least have the satisfaction of seeing in a narrow compass, the principal opinions relative to this subject.

Within these three or four years we have been successful enough to introduce into this kingdom a few genuine Tea plants. There was formerly, I am told, a very large one in England, the property of an East-India captain, who kept it some years, and refused to part with either cuttings or layers. This died, and there was not another left in the kingdom. A large plant was not long since in the possession of the great Linnæus, which, I am informed, is now dead. I know several gentlemen, who have spared neither pains nor expence to procure this evergreen from China, but their best endeavours proved unsuccessful. For though many strong and good plants were shipped at Canton, and all possible care taken of them during the voyage, yet they soon grew sickly, and but one till of late has survived the passage to England.

The largest Tea plant in this kingdom, is, I believe, at Kew; it was presented to that royal seminary by J. Ellis, Esq; who raised it from the feed.

seed. But the plant at Sion-house, belonging to the Duke of Northumberland, is the first that ever flowered in Europe ; and an elegant drawing has been taken from it in that state, with its botanical description. The engraver has done justice to his original drawing, which is now in the possession of that great promoter of natural history, Dr. Fothergill, to whom I have been indebted for many dried specimens and flowers of the Tea-tree from China. If the reader compares this plate with the following description, he will have as clear an idea of this exotic shrub, as can at present be exhibited.

There have been likewise a few young Tea plants lately introduced into some of the most curious botanic gardens about London ; so that it seems probable this very distinguished vegetable will become a denizen of England, and such of her colonies as may be deemed most favorable to its propagation.

In regard to the effects of Tea on the human constitution, one might have imagined that long and general use would have furnished so many indisputable proofs of its good and bad properties, that nothing could be easier than to determine these with precision : yet so difficult a thing it is
to

to establish physical certainty in regard to the operation of food or medicines on the human body, that our knowledge in general, even with respect to this article, is very imperfect. Nevertheless, I have endeavoured to avail myself of what has been written on it by my predecessors with the appearance of reason, as well as of the conversation of learned and ingenious men now living, together with such experiments and observations as have occurred to me, so as to furnish the means of a more extensive knowledge of the subject.

THE

T H E
N A T U R A L H I S T O R Y
O F T H E
T E A - T R E E.

P A R T T H E F I R S T.

S E C T. I.

C L A S S X I I I. O R D E R I I I.

P O L Y A N D R I A T R I G Y N I A (a).

K. CALYX, Fig. 1. 2. 3. 10.	PERIANTHIUM quinquepartitum, <i>minimum,</i> <i>planum,</i> <i>segmentis rotundis,</i> <i>obtusis,</i> <i>persistentibus.</i> (Fig. 1. K.)	K. The CA- LYX, Fig. 1. 2. 3. 10.	A PERIANTHIUM quinquepartite, very small, flat, the segments round, obtuse, permanent. (Fig. 1. K.)
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(a) Linnæus places the Tea under the order of Monogynia; but the plant in the duke of Northumberland's garden at Sion, flowered last October, which has been the means of rectifying this mistake of the learned professor. See Amœn. Acad. Vol. VII.

B

C. COROLLA,

C. COROLLA, F. 1. 3. 4. 5. 6. 7. 8.	PETALA <i>sex</i> , <i>subrotunda</i> , <i>concava</i> : duo exteriora (F. 4. 7. C. C.) minora, inæqualia, Florem nondum ex- pansum circum- dantia: (F. 3. C.) quatuor interiora, (F. 6. C. C. C. C. & F. 5.) magna, <i>æqualia</i> , antequam decidunt, recurvata. (F. 8. C. C.)	C. The Co- ROLLA, F. 1. 3. 4. 5. 6. 7. 8.	The PETALS six (<i>b</i>), subrotund, or round- ish. concave : two exterior, (F. 4. 7. C. C.) less, unequal, inclosing the flower before it is fully blown: (F. 3. C.) four interior, (F. 6. C. C. C. C. and F. 5.) large, equal, before they fall off, recurvate. (F. 8. C. C.)
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(*b*) Among some hundred specimens of dried Tea-flowers that I have examined, scarcely one in twenty was perfect. Some had three petals only, some nine, and others the several intermediate numbers. The flowers which seemed complete in their number, consisted of six large petals, and externally three lesser ones of the same form. But the flowers which blossomed on the Tea-plant belonging to the duke of Northumberland, consisted in general of six petals, from which this description is taken. One of the flowers indeed, appeared to have eight petals; however, the number in the flowers of most plants vary considerably, which may account for the mistake of the indefatigable Dr. Hill, and professor Linnæus, (who described this plant on Dr. Hill's authority) who make the green and bohea Tea two distinct species, giving nine petals to the former, and six to bohea. See Amœn. Acad. Vol. VII. p. 248. Hill. Exot. t. 22. Kämpfer. Amœn. Exot. p. 607. Breyn. Exot. Plant. Cent. 1. p. 111.

STAMINA,

STAMINA, F. 6. 9. 10. 11.	f. FILAMENTA <i>numerosa</i> , (ducenta circiter.) (f. a. F. 6. 9.) <i>filiformia</i> , <i>corolla breviora</i> . a. ANTHERAS COR- datae, biloculares.	The STAMENS, F. 6. 9. 10. 11.	f. The FILAMENTS numerous (<i>c</i>), (f. a. Fig. 6. 9.) (about 200) filiform, shorter than the Corolla. a. The ANTHERAS cordate, bilocular (<i>d</i>).
PISTILLUM, F. 1. 10. 12. * Lente auctum.	g. GERMEN <i>globosotrigonum</i> . (F. 1. 10. 12.) s. STYLI tres, ad basin coaliti, (F. 12.) <i>subulati</i> , <i>recurvati</i> , <i>longitudine staminum</i> , inter stamina conferta coarctati & velut in unum.	The PISTILLUM, F. 1. 10. 12. * magnified	g. The GERMEN three globular bodies joined in a triangular form. (F. 1. 10. 12.) s. The STYLES three, connected at their base, (F. 12.) subulate, recurvate, of the length of the stamens, pressed together, and as if united in one by the thickset

(*c*) In a flower I received from that accurate naturalist, J. Ellis, F. R. S. &c. I counted upwards of 280 filaments.

(*d*) Kæmpfer describes the Antheras as being single.

	consolidati, (F. 6. 9. 10.)	furrounding stamens (<i>e</i>), (F. 6. 9. 10.)
PISTILLUM, F. 1. 10. 12. * Lente auctum.	Petalis autem Stamina- minibusque de- lapsis, a se mu- tuo recedentes, divaricantes, & longitudine auc- ta, marcescentes. (F. 1. 12.)	but, after the petals and stamens are fallen off, they part from each other, spread o- pen, increase in length, and wi- ther on the Ger- men. (F. 1. 12.)
	t. STIGMATA <i>simpli-</i> <i>cia</i> . (F. 1. 9. 10. 12.)	t. The STIGMAS simple. (F. 1. 9. 10. 12.)
P. PERICAR- PIUM, F. 1. 13. 14.	CAPSULA <i>ex tribus</i> <i>globis coalita</i> , (F. 13.) trilocularis, (F. 14.) apice trifariam de- hiscens. (F. 13.)	A CAPSULE in the form of three glo- bular bodies u- nited, (F. 13.) trilocular, (F. 14.) gaping at the top in three directions. (F. 13.)
S. SEMINA, F. 14.	{ <i>solitaria</i> , <i>globosa</i> , <i>introrsum angulata</i> .	{ single, globose, angulate on the in- ward side.

(*e*) This has occasioned the mistake of professor Linnæus, in placing this plant under the order of Monogynia. The deception is very natural from examining dried specimens only. See pag. 1. note (*a*).

T. TRUN-

T. TRUNCUS, F. I.	ramofus, lignofus, teres : ramis alternis, vagis, rigidiufculis, cinerafcntibus, prope apicem rufe- fcntibus. Florum pedunculi axillares, (F. I. p.) alterni, folitarii, curvati, uniflori,	T. The TRUNK (f), F. I.	ramofe, ligneous, round : the branches alter- nate, vague, or placed in no regular order, ftiffifh, inclining to an afh color, towards the top red- difh. The peduncles axil- lary, (F. I. p.) alternate, fingle, curved, uniflorous,

(f) Authors widely differ refpecting the fize of this tree. Le Compte fays, it grows of various fizes from two feet to two hundred, and fometimes fo thick that two men can fcarcely grasp the trunk in their arms: though he afterwards obferves, that the Tea-trees he faw in the province of Fokien, did not exceed five or fix feet. Journey through the empire of China. London, 1697, 8vo. p. 228. Du Halde quotes a Chinefe author, who defcribes the height of different Tea-trees, from one to thirty feet. Description générale hiftorique, chronologique, politique, et phyfique de la Chine, Paris, 1755. Fol. 4 Tom. Hiftory of China, London, 1736. 8vo. Vol. IV. page 22. See alfo Le Spectacle de la Nature, par l'Abbé Pluche, Tom I. p. 486. Edit. 1732. á Paris. Concorde de la geographie, 1754. á Paris, ouvrage pofthume.

But Kæmpfer, who is chiefly to be depended upon, confines the full growth to about a man's heighth. Amœn. Exot. Lemgov. 1712, 4to. page 605. Probably this may be a juft medium, for Osbeck fays, that he faw Tea-fhrubs in flower-pots, not above an ell high. Voyage to China, Vol. I. p. 247. See alfo Eckerberg's account of the Chinefe husbandry, Vol. II. p. 303.

incraffati,

T. TRUNCUS, F. 1.	incrassati, (F. 1. 2. 7.) stipulati: stipula solitaria, subulata, } (F. 1. 2. erecta. } 7. 9. d.)	T. The TRUNK, F. 1.	incrassate, (F. 1. 2. 7.) (g) stipulate: the stipula single, subulate, } (F. 1. 2. erect. } 7. 9. d.)
F. FOLIA, F. 1. 15. 16. 17.	alterna, elliptica, obtuse ferrata, mar- ginibus interden- tes recurvatis ; apice margi- nata, (F. 15. e.) basi integer- rima, (F. 16. 17.) glabra, nitida, bullata, subtus venosa,	F. The LEAVES, F. 1. 15. 16. 17.	alternate, elliptical, obtusely ferrate, with the edges between the teeth recur- vate, with the apex emarginate, (F. 15. e.) (b) at the base very en- tire, (F. 16. 17.) the surface smooth, glossy, bullate (i), venose on the under side,

(g) When the peduncles encrease in thickness towards their extremities, being thinner at their insertions into the trunk.

(b) No author has hitherto remarked this obvious circumstance, even Kæmpfer himself says, that the leaves terminate in a sharp point. Amoen. Exot. p. 611.

(i) When the upper surface of the leaf rises in several places in roundish swellings, hollow underneath.

consistenta,

F. FOLIA, F. 1. 15. 16. 17.	{	confistentia, petiolata :	{	F. The LEAVES, F. 1. 15. 16. 17.	{	of a firm texture, petiolate :
		Petiolis brevissimis, (F. 1. 16. 17. b.)				The Petioles very short, (F. 1. 16. 17. b.)
		subtus tereti- bus,				round on the under side, (F. 16. b.)
		gibbis,				gibbous, or <i>bunching</i> out, (F. 16. b. * mag- nified.)
		supra plano-cana- liculatis. (F. 17. b. * Lente auctis.)				on the upper-side, flattish, and slight- ly channelled. (F. 17. b. * magni- fied.)

Nomina trivialia
Thea bohea &
viridis.

The common names
bohea and green
Teas (*k*).

There is only one species of this plant; the difference of green and bohea Tea depending upon the nature of the soil, the culture, and manner of drying the leaves. It has even been observed, that a green Tea tree, planted in the bohea country, will produce bohea Tea, and so the contrary (*l*).

(*k*) Whether the word Tea, is borrowed from the Japanese *Tsjaa*, or the Chinese *Thek*, is not of much importance. By this name, with very little difference in pronunciation, the plant here treated of is well known in most parts of the world.

(*l*) I have examined several hundred flowers, both from the bohea and green Tea countries, and their botanical characters have always appeared uniform. See Directions for bringing over seeds and plants from distant countries, by J. Ellis, Esq.

S E C T. II.

S Y N O N I M A.

Many authors have at different times treated upon this subject ; some who never saw the Tea-tree, as well as others who had (*m*). I shall first enumerate those which are mentioned in the species plantarum of Linnæus (*n*).

Thea, Hortus Cliffort. 204. Mat. Med. 264. Hill. Exot. t. 22.

Thee, Kämpfer. Japan. 605. t. 606.

Thee frutex. Barthol. Act. 4. p. 1. t. 1. Bont. Jav. 87. to 88.

Thee Sinenfium. Breyn. Cent. 111. t. 112. icon. 17. t. 3. Bocc. Mus. 114. t. 94.

Chaa. Bauh. pin. 147.

Evonymo affinis arbor orientalis nucifera, flore roseo. Pluk. Alm. 139. t. 88. fig. 6.

In the Acta Hassniensia, we meet with the first figure of this tree ; but as it was taken from a dried specimen, it does not illustrate the subject very well. Bontius published another, and though drawn in India, where he might have seen the plant, it does not much surpass the preceding. The figure given by Plukenet is better than either of the former ; and after his, Breynius published one still better : But the most accurate figure, as well as the best description, is given by Kämpfer (*o*), and even this figure has so many faults,

(*m*) See Jac. Breynii. Exotic. Cent. 1. p. 114, 115.

(*n*) Vol. I. p. 734.

(*o*) Amœnit. Exotic. p. 618, et seq. See also his history of Japan by Scheuchzer, Lond. 2 Vol. Fol. App. p. 3. Geoffr. Mat. Med. Vol. II. p. 276.

that

that it may be doubted, whether it were not drawn from an imperfect dried specimen, or some mutilated plant, which had passed through the fingers of the expert Chinese (*p*).

S E C T. III.

Besides the authors quoted above, several others have given some account of this exotic ever-green, the principal of which are here added, that the reader who requires further information may consult the same (*q*).

Johann. Petr. Maffeus rerum Indicarum libro VI. pag. 108, & lib. XII. p. 242. Ludov. Almeyd. in eodem opere lib. IV. select. epist.

Petr. Jarric. Tom. II. lib. II. cap. XVII.

Matth. Ric. de Christian. exped. apud Sinas, lib. I. cap. VII.

Alois Frois, in Relat. Japonicâ.

Nicol. Trigaut. de Regno Chinæ, cap. III. p. 34.

Linscot. de Insula Japonicâ, cap. XXVI. pag. 35.

Bernhard. Varen. in descriptione Regni Japoniæ, cap. XXIII. pag. 161.

(*p*) Osbeck in his voyage to China, speaking of the Camellia, says, "I bought one of a blind man in the street, which had fine double white and red flowers. But by further observing it in my room, I found that the flowers were taken from another; and one calyx was so neatly fixed in the other with nails of Bamboo, that I should scarce have found it out, if the flowers had not begun to wither. The tree itself had only buds, but no open flowers. I learned from this instance, that whoever will deal with the Chinese, must make use of his utmost circumspection, and even then must run the risk of being cheated." Vol. VII. p. 17.

(*q*) Vid. Jac. Breynii Gedanensis Exoticarum aliarumque minus cognitarum Plantarum Cent. I. 1678, Fol. pag. 114.

Joh. Bauhin. *Histor. Univers. Plantarum*, 1597. Tom. III. lib. XXVII. cap. I. pag. 5. b.

Alex. Rhod. *Sommaire des divers voyages et Missions Apostoliques du R. P. Alexandre de Rhodes de la compagnie de Jesus à la Chine et autres Royaumes de l'orient, avec son retour de la Chine, à Rome; depuis l'année 1618, jusques à l'année 1653*, p. 25.

Les Lettres curieuses et edifiantes des Jesuits.

Nicol. Tulp. *Observat. Medic.* lib. IV. cap. LX. p. 380. Leidæ, 1641. 8vo.

Adam. Olearii *Persianische Reise-Beschreibung*, lib. V. cap. XVII. p. 599. Fol. 1656. Hamburg, 1696. Amstelod. 1666. 4to.

Johan. Albert. *von Mandelslo, Morgenlandische Reise-Beschreibung*, lib. I. cap. XI. pag. 39. Edit. 1656.

Olai Wormii, *Mus.* lib. II. cap. XIV. pag. 165.

Dionysii Joncquet, *Stirpium aliquot paulò obscurius officinis, Arabibus aliisque denominatarum, per Casp. Bauhin. explicat.* p. 25. Ed. 1612.

Simon Pauli *Comment. de Abusu Tobaci et Herbæ Thee.* Straßburgh. 1665. Lond. 1746.

Simon Pauli *Quadripartitum Botanicum*, Classe secundâ, pag. 44. Ibidemque classe tertiâ, pag. 493.

Wilhelm. Leyl. *epistol. apud Simon Pauli in Comment. de Abusu Tabaci, &c.* p. 15. b.

Joann. Nieuzofs, *Gezantschap an den Keizer van China*, pag. 122. a.

Erasmi Franciff. *Ost-und West-Indischer wie auch Sinesischer Lust-und Stats-Garten*, p. 291.

Oliv. Dappers *Beschryvinge des Keizerryts van Taifing of Sina*, Amstel. 1680. Fol. p. 226.

Athanas.

- Athanas. Kircher, *Chin. Illustrat.* Ed. 1658.
 Pechlin Theophilus *bibaculus*, Franckfort, 1684.
 Le Compte's journey through the empire of China.
 London, 1697. 8vo. pag. 228.
 Joh. Ludov. Apinus, *Obf.* 70. *Decur.* 3. *Miscell. Curios.*
 1697. Andr. Cleyerus, *Dec.* 2. *An.* 4ti. pag. 7. Dan. Cru-
 gerus, *Dec.* 2. *Ann.* 4ti. p. 141. Riedlinus, *Lin. Med. Ann.*
 4ti. Dom. Ambros. Stegmann, *de Decoct. Theæ.* Vol. V. p.
 36.
 Chamberlain's treatise of Coffee, Tea, and Chocolate.
 Lond. 1685. 12mo. p. 46.
 Sir Thomas Pope Blount's *Natural History*, 8vo. London,
 1693.
 Philosophical Transactions, Vol. III. No. 14. London, 1712.
 Kæmpfer. *Amœnit. Exotic. Lemgov.* 4to. 1712. p. 618.
 ——— history of Japan by Scheuchzer. Lond. 2 V. Fol.
 Append. p. 1, & seq.
 Labat *Nouveau voyage aux Iles de l'Amerique.* Paris, 1721.
 Short's Dissertation upon the nature and properties of Tea,
 &c. 4to. London, 1730.
 Mafon on the properties of Tea.
 Ancient accounts of India and China, by two Mahommedan
 Travellers. London, S. Harding, 1732.
 L'Abbé Pluche *Le Spectacle de la Nature*, à Paris, 1732.
 Du Halde *Description générale Historique, Chronologique,*
Politique et Physique de la Chine, Paris, Fol. 4 Vol. History
 of Japan, London, 4 Vol. 8vo. 1735.
 Casp. Neumann, *Vom Thee, Coffee, Bier, und Wein*, Leipf.
 1735.
 Chambers' *Encyclopædia*, Tom 2.
 Astley's Collection of Voyages, 4 Vol. 4to. London, 1746.
 C 2 Concorde

Concorde de la Geographie, á Paris, ouvrage posthume, 1754.

The good and bad effects of Tea considered, Anonymous, London, 8vo. 1758.

Linnæi Amœnit. Acad. Vol. VII. p. 241.

Neumann's Chemistry, by Lewis, 4to. 1759, pag. 373.

Hanway's Journal of eight days journey, 2 Vol. London, pag. 21. Vol. II.

Hart's Essays on Husbandry, pag. 166.

Percival's Experiments and Medical Essays, 8vo. pag. 119.

Osbeck's voyage into China, by Forster, London, 2 Vol. 8vo.

Young's Farmer's Letters, Vol. I. p. 299, & 202.

Tiffot on diseases incidental to literary and sedentary persons, by Kirkpatrick, London, 1769. 12mo. pag. 145.

Bomare Dictionnaire d'Histoire naturelle, 8vo. á Paris, 1769.

Milne's Botanical Dictionary, 8vo. London, 1770.

S E C T. IV.

O R I G I N O F T E A.

As China and Japan (*r*) are the only countries known to us, where the Tea shrub is cultivated, we may reasonably conclude, that it is indigenous to one of them, if not to both. What motive first led the natives to use an infusion of Tea in the present manner is uncertain; but probably in order to correct the water, which is said to be brackish and ill tasted in many parts of those countries (*s*). Of the good effects of

(*r*) Some authors add Siam also.

(*s*) Le Comte's journey through the empire of China, p. 112.

Tea in such Cases, we have a remarkable proof in Kalm's journey through North America, which his translator gives us in the following words :

“ Tea is differently esteemed by different people, and I think we *would* be as well, and our purses much better, if we were without tea and coffee. However, I must be impartial, and mention in praise of Tea, that if it be useful, it must certainly be so in summer, on such journies as mine, through a desert country, where one cannot carry wine or other liquors, and where the water is generally unfit for use, as being full of insects. In such cases it is very pleasant when boiled, and Tea is drank with it ; and I cannot sufficiently describe the fine taste it has in such circumstances. It relieves a weary traveller more than can be imagined, as I have myself experienced, together with a great many others, who have travelled through the desert forests of America : on such journies Tea is found to be almost as necessary as victuals (*t*).”

This article was first introduced into Europe by the Dutch East India company, very early in the last century ; and a quantity of it was brought over from Holland about the year 1666 (*u*), by lord Arlington and lord Ossory. It soon became known amongst people of fashion, and its use by degrees since that period is become universal.

It is indeed certain, that before this time, drinking Tea even in public coffee-houses was not uncommon ; for in 1660,

(*t*) Kalm's travels into North America, Vol. II. p. 314. The following note is added by the ingenious English translator :

“ On my travels through the desert plains, beyond the river Volga, I have had several opportunities of making the same observations on Tea, and every traveller in the same circumstances, will readily allow them to be very just.” Forster *ibid*.

(*u*) Hanway's Journal of eight days journey, Vol. II. p. 21. The same author observes, that Tea sold at this time for sixty shillings a pound.

a duty

a duty of 8d. per gallon was laid on the liquor, made and sold in all coffee-houses (x).

So early as 1679, Cornelius Bontekoe, a Dutch physician, published a treatise in Dutch, on tea, coffee, and chocolate. In this he shews himself a very zealous advocate for Tea, and denies the possibility of its injuring the stomach, although taken to the greatest excess, as far as one or two hundred cups in a day. Whether or no political interest might influence Dr. Bontekoe, is uncertain; but as he was first physician to the Elector of Brandenburg, and probably of considerable eminence and character, his eulogium might tend greatly to promote its use: however we find its importation and consumption were daily augmented, and before the conclusion of the last century, it became generally known among the common people in England.

It is foreign to my subject, or it would perhaps afford to a speculative mind, no inconsiderable satisfaction, to trace the consumption from its first entrance at the Custom-house, to the present amazing imports. I have been told, that at least three millions of pounds are annually allowed for home consumption (y); and that the East-India company have generally in their warehouses a supply for three years.

It is probable that the Dutch, as they traded considerably to Japan about the time Tea was introduced into Europe, first brought this article from thence. But now China is the general mart, and the province Fokien (z), is the principal

(x) Short's introductory preface to the natural history of Tea, p. 13.

(y) The quantity of Tea annually smuggled into this kingdom is almost incredible; which is not included in the above calculation.

(z) In this province, this shrub is called Thee or Te; and as the Europeans first landed here, that dialect has been preserved. Le Compté's journey through the empire of China, p. 227. Du Halde's history of China, Vol. IV. p. 21.

country,

country, that supplies both the empire and Europe with this commodity.

S E C T. V.

SOIL AND CULTURE.

We are principally indebted to Kæmpfer, for any accounts that may be relied on, in respect to the method of cultivation; and his description was drawn up in Japan. We shall give what he says upon this subject, and then state the accounts we have been able to collect of the Chinese method.

Kæmpfer tells us, that no particular gardens or fields are allotted for this plant, but that it is cultivated round the borders of the fields, without any regard to the soil. Any number of the seeds, as they are contained in their seed-vessels, not usually less than six, or exceeding twelve or fifteen, are promiscuously put into one hole, made four or five inches deep in the ground, at certain distances from each other. The seeds contain a large proportion of oil, which is soon liable to turn rancid; hence scarce a fifth part of them germinate, and this makes it necessary to plant so many together.

The seeds vegetate without any other care; but the more industrious annually remove the weeds, and manure the land. The leaves which succeed are not fit to be plucked before the third year's growth, at which period they are plentiful, and at their prime.

In about seven years the shrub rises to a man's height; but as it then bears few leaves, and grows slowly, it is cut down to the stem, which occasions such an exuberance of
fresh

fresh shoots and leaves the succeeding summer, as abundantly compensates the owners for their former loss and trouble. Some defer cutting them till they are of ten years growth.

So far as can be gathered from authors and travellers of credit, this shrub is cultivated and prepared in China, in a similar manner to what is practised in Japan; but as the Chinese export considerable quantities of Tea, they plant whole fields with it, to supply foreign markets, as well as for home consumption.

The Tea-tree delights particularly in vallies, or on the declivities of hills, and upon the banks of rivers, where it enjoys a southern exposure to the sun; though it endures considerable variations of heat and cold, as it flourishes in the northern clime of Pekin, as well as about Canton (*a*), the former of which is in the same latitude with Rome; and from meteorological observations it appears, that the degree of cold about Pekin is as severe in winter, as in some of the northern parts of Europe (*b*).

(*a*) The best Tea grows in a mild temperate climate: The country about Nankin producing better Tea than either Pekin or Canton, betwixt which places it is situated. It has been asserted, that no Tea-plants have yet died in England through excess of cold; but an example of the contrary I know has happened. The plant in the Princess Dowager's garden at Kew, flourishes under glass windows, with the natural heat of the sun, as well as those at Mile-end, in the possession of the indefatigable J. Gordon. Two of the Tea-plants belonging to Dr. Fothergill thrive in his garden at Upton, exposed to the open air in summer.

(*b*) Du Halde and other authors have observed, that the degree of cold in some parts of China is very severe in winter. In the inland parts of North America, and on extensive continents, the degrees of heat and cold are found to be much more violent than in islands or places bordering on the sea in the same latitude, as the air that blows over the sea is liable to less variation in these respects, than that which blows over large tracts of land, because the sea, large lakes, &c. continue near one temperature through different seasons.

S E C T. VI.

G A T H E R I N G T H E L E A V E S.

At the proper seasons for gathering the Tea leaves, labourers are hired, who are very quick in plucking them, being accustomed to follow this employment as a means of their livelihood. They do not pluck them by handfuls, but carefully one by one; and tedious as this may appear, they are able to collect from four to ten or fifteen pounds each, in one day. The different periods in which the leaves are usually gathered, are particularly described by Kämpfer (*c*).

I. The first commences at the middle of the first moon, preceding the vernal equinox, which is the first month of the Japanese year, and falls about the latter end of our February, or beginning of March. The leaves collected at this time are called Ficki Tsjaa, or powdered Tea, because they are pulverised and sipped in hot water (SECT. IX. 1). These tender young leaves are but a few days old when they are plucked; and because of their scarcity and price, are disposed of to princes and rich people only; and hence this kind is called imperial Tea.

A similar sort is also called Udfi Tsjaa, and Tacke Sacki Tsjaa, from the particular places where it grows. The peculiar care and nicety observed in gathering the Tea leaves in these places may deserve some notice here, and we shall therefore give some account of one of them.

(*c*) Amœnitat. Exotic. p. 618, et seq. History of Japan. Appendix to Vol. II. p. 6, et seq.

Udſi is a ſmall Japaneſe town, bordering on the ſea, and not far diſtant from the city of Miaco. In the diſtrict of this little town, is a pleaſant mountain of the ſame name, which is reckoned to poſſeſs the moſt favorable ſoil and climate for the culture of Tea, on which account it is incloſed with hedges, and likewise ſurrounded with a broad ditch for further ſecurity. The trees are planted upon this mountain in ſuch a manner as to form regular rows, with intervening walks. Perſons are appointed to ſuperintend the place, and preſerve the leaves from injury or dirt. The labourers who are to gather them, for ſome weeks before they begin, abſtain from every kind of groſs food, or whatever might endanger communicating any ill flavor; they pluck them alſo with the ſame delicacy, having on a thin pair of gloves (*d*). This ſort of imperial or bloom Tea (*e*), is afterwards prepared, and then eſcorted by the chief ſurveyor of the works of this mountain, with a ſtrong guard, and a numerous retinue, to the emperor's court, for the uſe of the imperial family.

II. The ſecond gathering is made in the ſecond Japaneſe month, about the latter end of March, or beginning of April. Some of the leaves at this period are come to perfection, others not arrived at their full growth; both however are promiſcuouſly gathered, and are afterwards ſorted into different claſſes, according to their age, ſize, and goodneſs; the youngeſt particularly are carefully ſeparated, and are often ſold for the firſt gathering or imperial Tea. The tea col-

(*d*) The ſame cautions are not uſed previous to collecting other ſorts of Tea.

(*e*) This cannot be the ſort to which alſo the Dutch give that name, as it is ſold upon the ſpot to the princes of the country, for much more than the common bloom Tea is ſold for in Europe. Kämpfer. Amœnit. Exotic. p. 617. History of Japan. Appendix, p. 9. Neumann's Chemistry by Lewis, p. 373.

lected at this time is called Tootsjaa, or Chinese Tea, because it is infused, and drank after the Chinese manner (SECT. IX. I). It is divided by the Tea dealers and merchants into four kinds, distinguished by as many names.

III. The third and last gathering, is made in the third Japanese month, which falls about our June, when the leaves are very plentiful and full grown. This kind of Tea called Ban Tsjaa, is the coarsest, and is chiefly drank by the lower class of people (SECT. IX. III).

Some confine themselves to two gatherings in the year, their first and second, answering the preceding second and third. Others have only one general gathering (*f*), which they make also at the same time with the preceding third or last gathering: however, the leaves collected at each time, are respectively separated into different sortments.

We have observed (SECT. V.), that the Tea tree frequently grows on the steep declivities of hills and precipices, where it is commonly dangerous, sometimes impracticable to collect the leaves, which are often the finest Tea. The Chinese in some places surmount this difficulty by a singular contrivance. These cliffs are inhabited by a large kind of monkies; these the Tea gatherers irritate by some means; in revenge the monkies break off the branches of the Tea tree, and throw them down in resentment; the branches are gathered up, and the Tea leaves picked off. This method of coming at the Tea in such places, was pointed out to me upon some curious Chinese drawings, representing the whole process of

(*f*) In this case the under leaves, which are harsh and less succulent, are probably left upon the trees. See Eckerberg's Chinese husbandry in Osbeck's voyage, Vol. II. p. 303.

gathering and curing Tea; and I have since been informed by a very inquisitive sensible commander, who has been long in the Company's service, and frequently at China, that this circumstance is a well known fact.

The Chinese collect the Tea at certain seasons (*g*), but whether the same as in Japan, we are not so well informed, most probably, however, the Tea harvest is nearly at the same periods, as the natives have frequent intercourse, and carry on a considerable trade with each other (*h*).

S E C T. VII.

METHOD OF CURING OR PREPARING T E A.

Public buildings or drying houses are erected for curing Tea, and so regulated, that every person, who either has not suitable conveniences, or wants the requisite skill, may bring his leaves at any time to be dried. These buildings contain from five to ten or twenty small furnaces, about three feet high, each having at the top a large flat iron pan (*i*), either

(*g*) Du Halde's history of China, Vol. IV. p. 21.

(*h*) Ibid. Vol. II. p. 300. Kämpfer observes in his history of Japan, that the trade between these nations has continued from remotest antiquity; formerly the Chinese had a much more general intercourse with the Japanese than they have at present; the affinity in the religion, customs, books, learned languages, arts and sciences of the Chinese with the latter, had procured them a free toleration in Japan. History of Japan, Vol. I. p. 374.

(*i*) Some writers mention copper pans, and suppose, that the green efflorescence which appears on copper, may encrease the verdure of green Tea; but from experiments that I made, there does not appear any foundation for this supposition. See SECT. VIII.

high,

square or round, bent up a little on that side which is over the mouth of the furnace, which at once secures the operator from the heat of the furnace, and prevents the leaves from falling off.

There is also a long low table covered with matts, on which the leaves are laid, and rolled by workmen, who sit round it. The iron pan being heated to a certain degree by a little fire made in the furnace underneath, a few pounds of the fresh gathered leaves are put upon the pan; the fresh and juicy leaves crack when they touch the pan, and it is the business of the operator to shift them as quick as possible with his bare hands, till they grow too hot to be easily endured. At this instant he takes off the leaves, with a kind of shovel, resembling a fan, and pours them on the matts to the rollers, who taking small quantities at a time, roll them in the palms of their hands in one direction, while others are fanning them, that they may cool the more speedily, and retain their curl the longer.

This process is repeated two or three times, or oftner, before the Tea is put in the stores, in order that all the moisture of the leaves may be thoroughly dissipated, and their curl more completely preserved. On every repetition the pan is less heated, and the operation performed more slowly and cautiously (*k*). The Tea is then separated into the different kinds, and deposited in the store for domestic use or exportation.

As the leaves of the Ficki Tea (SECT. VI. and IX. 11), are usually reduced into a powder before they are drank, they

(*k*) This should be carefully attended to, in curing the fine green Teas, to preserve their verdure and perishable flavor. See SECT. VIII. ad finem.

should

should be roasted to a greater degree of dryness. As some of these are gathered when very young, tender, and small, they are first immersed in hot water, taken out immediately, and dried without being rolled at all.

Country people cure their leaves in earthen kettles *(l)*, which answer every necessary purpose at less trouble and expence, whereby they are enabled to sell them cheaper.

To complete the preparation, after the Tea has been kept for some months, it must be taken out of the vessels, in which it had been contained, and dried again over a very gentle fire, that it may be deprived of any humidity which remained, or might since have been contracted.

The common Tea is kept in earthen pots with narrow mouths; but the best sort of Tea used by the emperor and nobility, is put in porcellane or China vessels. The Bantsjaa or coarsest Tea, is kept by the country people in straw baskets, made in the shape of barrels, which they place under the roofs of their houses, near the hole that lets out the smoke, and imagine that this situation does not injure the Tea.

This is the relation we have from Kämpfer of the method in which the Japanese collected and cured their Tea. In the accounts of China, authors have in general treated very slightly of the cultivation and preparation of Tea. Le Compte *(m)* indeed observes, that to have good Tea, the leaves should be gathered while they are small, tender, and juicy. They begin commonly to gather them in the months of March and April, according as the season is forward; they

(l) This is also done in China. See Eckerberg's Chinese husbandry in Osbeck's voyage, Vol. II. p. 303.

(m) Journey through the empire of China.

afterwards

afterwards expose them to the steam of boiling water to soften them; and as soon as they are penetrated by it, they draw them over copper plates (*n*) kept on the fire, which dries them by degrees, till they grow brown, and roll up of themselves in that manner we see them.

However it is certain, from the Chinese drawings, which exhibit a faithful picture, though rudely executed, of the whole process from beginning to end, that the Tea tree grows for the most part in hilly countries, on their rocky summits, and steep declivities, inaccessible in many places; and it would seem by the pains the Chinese are at, in making paths, fixing a kind of scaffolds, and even employing the vengeance of monkeys to assist them, that these places afford the finest Tea. It appears from these drawings, that the trees in general are not much taller than man's height: The gatherers of the leaves are never represented but on the ground, they make use of hooked sticks indeed, but these seem rather intended to draw the branches towards them, when the trees hang over brooks, rivers, or inaccessible places, than to bend down the tops or upper branches of the trees on plain ground.

They pick the leaves as soon as gathered into different sorts, and cure them nearly in the manner described to be practised by the Japanese. They build a range of stoves, like those in a chymist's laboratory, or great kitchen, where the men work, and curl the leaves in the pans themselves. It seems also that they repeat the drying. They dry it likewise, after having spread it abroad in shallow baskets, in the

(*n*) Upon this subject, See SECT. VII. and VIII. It may be doubted also whether the conclusion of Le Compte's relation is not erroneous, as it is improbable that any leaves should of themselves take so perfect a curl, as that in which Tea is brought into Europe.

fun; and by the means of sieves, separate the larger from the smaller leaves, and these again from the dust.

The Chinese put the finer kinds of Tea into conic vessels, like sugar loaves, made of tutenaque, tin, or lead, covered with neat matting of bamboo; or in square wooden boxes lined with thin lead, dry leaves and paper, in which manner it is exported to foreign countries. The common Tea is put into baskets, out of which it is emptied, and packed up in boxes or chests as soon as it is sold to the Europeans (*o*).

One thing should be mentioned to their credit; when their harvest of Tea is finished, each family fails not to testify their gratitude to the Giver.

S E C T. VIII.

V A R I E T I E S O F T E A.

It has been already observed (SECT. VI.) that many different sortments of Tea are made during the times of collecting the leaves, and these are multiplied according to the goodness of their preparation, by which the varieties of Tea may be considerably augmented (*p*). The distinctions with us are much more limited, being generally confined to three principal kinds of green, and five of bohea.

(*o*) There are several disgusting circumstances attending the preparation of Tea. Osbeck says, the Chinese servants tread the Tea into the chests with their naked feet. Voyage to China, Vol. I. p. 252.

(*p*) Du Halde's history of China, Vol. IV. p. 21. Osbeck's voyage to China. Vol. I. p. 246, et seq.

I. Those

I. Those of the former are,

i. Bing, imperial, or bloom Tea, with a large loose leaf, of a light green color, and faint delicate smell.

ii. Hy-tiann, or hi-kiong, known to us by the name of hyson Tea, so called after an East-India merchant of that name, who first imported it into Europe. The leaves are closely curled and small, of a green color, verging towards blue (*q*).

iii. Singlo, or sanglo, which name it receives, like many other Teas, from the place where it is cultivated.

II. The bohea Teas.

i. Soochuen, or futchong, by the Chinese called saatyang, or fu-tyann. It imparts a yellowish green color, by infusion (*r*).

ii. Camho, or founlo, called after the name of the place where it is gathered; a fragrant Tea with a violet smell. Its infusion is pale.

iii. Congo, or bong-fo. This has a larger leaf than the following, and the infusion is a little deeper colored. It resembles the bohea in the color of the leaf (*f*).

(*q*) The Chinese have another kind of hyson Tea, which they call hyson-utchin, with narrow short leaves. Another sort of green Tea they name go-bé, the leaves of which are narrow and long.

(*r*) Padre futchong has a finer taste and smell than the common futchong. The leaves are large and yellowish, not rolled up, but expanded, and packed up in papers of half a pound each. It is generally conveyed by caravans into Russia. Without much care it will be injured at sea. This Tea is rarely to be met with in England.

(*f*) There is a sort of Tea called lin-kisam, with narrow rough leaves. It is seldom used alone, but mixed with other kinds. By adding it to congo, the Chinese sometimes make a kind of pekoe Tea. Osbeck's voyage to China, Vol. I. p. 249.

iv. Pecko, or pekoe, by the Chinese called back-ho, or pack-ho. It is known by having the appearance of small white flowers intermixed with it.

v. Common bohea, called moji by the Chinese, consists of leaves of one color (*t*).

III. There has also been imported a sort of Tea, of a different form from any of the preceding, made up into cakes or balls of different sizes.

i. The largest kind of this cake Tea, that I have seen, weighs about two ounces; the infusion and taste resemble those of good bohea Tea.

ii. Another sort, which is a kind of green Tea, is called tio te': it is rolled up in a round shape, about the size of peas.

iii. The smallest kind done in this form is called gun powder Tea.

The Chinese likewise prepare an extract from Tea, which they exhibit as a medicine dissolved in a large quantity of water, and ascribe to it many powerful effects in fevers, and other disorders, when they wish to procure a plentiful sweat. This extract is sometimes formed into small cakes, not much broader than a sixpence, sometimes into rolls of a considerable size.

That there is only one species of Tea tree, has already been mentioned (SECT. I.) from which all the varieties of Tea are

(*t*) The best bohea Tea is named by the Chinese tao-kyonn. An inferior kind is called An-kai, from a place of that name. In the district of Honam near Canton, the Tea is very coarse, the leaves yellow or brownish, and the taste the least agreeable of any. By the Chinese it is named Honam té, or Kuli té.

procured.

procured. Kämpfer, who is of this opinion, attributes the difference of Teas, to the soil and culture of the plant, age of the leaves when gathered, and curation (*u*). These circumstances will severally have more or less influence; though whether they account for all the varieties observable in Tea may be doubted.

I infused all the sorts of green and bohea Teas I could procure, and expanded the different leaves on paper, to compare their size and texture, and thereby to discover their age; I found the leaves of green Tea as large as those of bohea, and nearly as fibrous; which would lead one to suspect that the difference does not so much depend upon the age, as upon the other circumstances.

We know that in Europe, the soil, culture, and exposure have great influence on all kinds of vegetables: the difference is often evident in the same province, and even in the same district; but in Japan, and particularly through the continent of China, it must be much more considerable, where the air is in some parts very cold, in others moderate, or warm almost to an extreme. I am persuaded that the method of preparation must also have no little influence. I have dried the leaves of some European plants, in the manner described (SECT. VI). which so much resembled the foreign Tea, that the infusion made from them has been seen and drunk without suspicion. In these preparations which I made, some of the leaves retained a perfect curl, and a fine verdure like the best green Tea; and others cured at the same time were more like the bohea (*x*).

(*u*) This renders what has been observed at the conclusion of SECT. I. more probable.

(*x*) A certain moderate degree of heat preserved the verdure and flavor better than a hasty exsiccation. In the first case, it is necessary to repeat the roasting oftener.

I would not however lay too much stress upon the result of a few trials, nor endeavour to preclude further enquiries about a subject, which at some future period may prove of more immediate concern to this nation.

We might still try to discover whether some art is not used with Tea before its exportation from China, to produce the difference of color (*y*), and flavor (*z*) peculiar to different sorts. An intelligent friend of mine informs me, that in a set of Chinese drawings in his possession, representing the whole process of making Tea, there are in one sheet the figures of several persons apparently separating the different kinds of Tea, and drying it in the sun, with several baskets standing near them filled with a very white substance, and in considerable quantity. To what use this may be applied is uncertain, as well as what the substance is; yet there is no doubt, he thinks, but it is used in the manufacturing of Tea, as the Chinese seldom bring any thing into their pieces but such as relate in some respect to the business before them.

As green Tea is by some suspected to have been cured on copper, they have attributed the verdure to the efflorescence from that metal (SECT. VII.), but if there were any foundation for this supposition, the volatile alkali, mixed with an

(*y*) Infusions of fine bohea Teas, do not differ a great deal in color from those of green.

(*z*) I am informed by intelligent persons, who have resided some time at Canton, that the Tea about that city, affords very little smell whilst growing. The same is observed of the Tea plants in England; and also of the dried specimens from China. We are not hence to conclude that art alone conveys to Teas when cured the smell peculiar to each kind, for our vegetables, grasses for instance, have little or no smell till dried, and made into hay.

infusion

infusion of such Tea, would detect the least portion of copper, by turning the infusion blue (*a*).

Others have, with less propriety, attributed the verdure to green copperas (*b*); but this ingredient, which is only salt of iron, would immediately turn the leaves black, and the infusion made from the Tea would be of a deep purple color (*c*).

Is it not more probable, that some green dye, prepared from vegetable substances, is used for the coloring?

S E C T. IX.

DRINKING OF TEA.

Neither the Chinese, nor natives of Japan, ever use Tea before it has been kept at least a year; because when fresh it is said to prove narcotic, and disorder the senses (*d*). The former pour hot water on the Tea, and draw off the infusion in the same manner as is now introduced from them into Europe; but they drink it simply without the addition of

(*a*) The hundredth part of a grain of copper, dissolved in a pint of liquor, strikes a sensible blue with volatile alkalies. Neumann's chemistry, by Lewis, p. 62. The finest imperial and bloom Teas shewed no sign of the presence of this metal by experiment.

(*b*) See Short on Tea, p. 16. Boerhaave attributed the verdure of green Tea to this substance.

(*c*) I remember a diverting incident which happened to a Tea party, who went into the country to spend an afternoon together. The water that was boiled for Tea, was brought from a chalybeate spring; when this water was poured into the Tea pot on the leaves, it turned immediately like ink, whereby the company were both surprized at the phenomenon, and disappointed of their refreshment.

(*d*) Kæmpfer. Amœnit. Exot. p. 625. History of Japan, 2 Vol. App. p. 10, 16.

sugar

sugar or milk (*e*). The Japanese reduce the Tea into a fine powder, by grinding the leaves in a hand-mill, and mix them with hot water into a thin pulp, in which form it is sipped (*f*), particularly by the nobility and rich people. It is made and served up to company in the following manner: the Tea-table furniture, with the powdered Tea inclosed in a box, are set before the company, and the cups are then filled with hot water, and as much of the powder as might lie on the point of a moderate sized knife, is taken out of the box, put into each cup, and then stirred and mixed together with a curious denticulated instrument till the liquor foams, in which state it is presented to the company, and sipped while warm (*g*). From what Du Halde relates, this method is not peculiar to the Japanese, but is also used in some provinces of China (*b*).

The common people, who have a coarser Tea (SECT. VI. III.) boil it for some time in water, and make use of the liquor for common drink. Early in the morning the kettle filled with water, is regularly hung over the fire for this purpose, and the Tea is either put into the kettle enclosed in a bag, or by means of a basket of a proper size, pressed to the bottom of the vessel, that there may not be any hinderance in drawing off the water. The Bantsjaa Tea, (SECT. VI. III.) only is used in this manner, whose virtues being more fixed, would not be so fully extracted by infusion.

And indeed Tea is the common beverage of all the laboring people in China, one scarcely ever sees them represented

(*e*) Osbeck's voyage to China, Vol. I. p. 299.

(*f*) This is called koitsjaa, that is, thick Tea, to distinguish it from that made by infusion.

(*g*) An inferior kind of Tea is infused, and drank in the Chinese manner. SECT. VI. II. and SECT. IX. I.

(*b*) History of China, Vol. IV. p. 22.

at work of any kind, but the Tea pot and Tea cup are either bringing to them, or set by them on the ground. Reapers, threshers, and all who work out of doors, as well as within, have this attendant (*i*).

To make Tea, and to serve it in a genteel and graceful manner, is an accomplishment, in which people of both sexes in Japan are instructed by masters, in the same manner as Europeans are in dancing, and other branches of a genteel education.

S E C T. X.

S U C C E D A N E A.

Curiosity and interest would mutually induce the Europeans to make the most diligent inquiries in order to discover the real Tea shrub, or a substitute in some other vegetable the most resembling it. Simon Pauli, a physician and botanist at Copenhagen, was the first who pretended to have discovered the real Tea plant in Europe. By opening some Tea leaves, he found them so much like those of the Dutch myrtle (*k*), (Hor. Su. 907). that he obstinately maintained they were productions of the same species of Tea; though he

(*i*) In public roads, and in all places of much resort in Japan, and even in the midst of fields and frequented woods, Tea booths are erected; as most travellers drink scarcely any thing else upon the road. Kämpfer's history of Japan, by Scheuchzer. Fol. Vol. II. p. 428.

(*k*) Myrica Gale. System. Natur. Vol. III. p. 651. A plant well known by the name of Gale in the north of England, and indigenous in Brabant, and other northern nations.

was afterwards refuted by feveral botanifts in Europe, and by the fpecimens fent to him, and to Dr. Mentzel of Berlin, from the Eaft-Indies by Dr. Cleyer (*l*).

Father Labat next thought he had difcovered the real Tea plant in Martinico (*m*), agreeing, he fays, in all refpects with the China fort. He pretends alfo to have procured Tea feeds from the Eaft Indies, and to have raifed the plant in America; but from his own account, it appears to be only a fpecies of *Lyfimachia*, or what is called Weft-India Tea (*n*).

Many other pretended discoveries of the oriental Tea-tree have been related; all which have proved erroneous, when properly enquired into. The genus of plant called by Kæmpfer *Tsubakki* (*o*), has the neareft refemblance. The leaves of feveral European plants have been ufed at different times as fubftitutes for Tea, either from fome fimilarity in the fhape of the leaves, or in the tafte and flavor; among thefe, two or three fpecies of *Veronica* have been particularly re-

(*l*) Figures of the fame were published in the *Acta Hafnienfia* and German *Ephemerides*.

(*m*) *Nouveau voyage aux Iles de l'Amerique*, Paris, 1721.

(*n*) This fhrub I have frequently met with in the Weft-Indies.

(*o*) Two fpecimens of this plant are now in the phyfic garden at Upfal. About the year 1755, they were brought over from China by M. Lagerftrom, a director of the Swedifh Eaft-India Company, under the fuppoftion of being Tea plants, till they appeared in bloffom, when they proved to be this fpecies of *Tsubakki*, called by Linnæus, *Camellia*. *Spec. Plant.* p. 982. This celebrated profeffor fays, " That the leaves of his *Camellia* are fo like the true Tea, that they would deceive the moft fkilful botanift; the only difference is, that they are a little broader. *Amœnit. Academ.* Vol. VII. p. 251. See alfo Ellis's directions for bringing over foreign plants, p. 28. A *Camellia* was laft fummer brought from China in good health; the leaves of this fhrub end in a double obtufe point, (obtusely emarginated) like thofe of the Tea tree, which makes them ftill more liable to be miftaken for thofe of the latter. Kæmpfer obferves, that the leaves of a fpecies of *Tsubakki* are preferved, and mixed with Tea, to give it a fine flavor. *Amœnit. Exotic.* p. 858.

commended

commended (*p*), besides the leaves of sage, myrtle (*q*), betony, agrimony, wild rose, and many others (*r*). Whether any of these are really more salutary or not, we now find, that from the palace to the cottage, every other substitute has yielded to the genuine Asiatic Tea.

S E C T. XI.

PRESERVING THE SEEDS FOR VEGETATION.

Many attempts to introduce the Tea-tree into Europe, have been unsuccessfully made, owing to the bad state of the seeds when first procured, or to want of judgment in preserving them long enough in a state of vegetation. If this complaint arise from the first cause, future precautions about such seeds will be in vain; it is therefore necessary to procure fresh, found, ripe seeds, white, plump and moist internally.

Two methods of preserving the seeds have put us in possession of a few young plants of the true Tea-tree of China; one is by inclosing the seeds in bees wax, after they have been well dried in the sun; and the other, by putting them, included in their pods, or capsules, into very close canisters made of tin and tutenague (*s*).

But

(*p*) *Veronica officinalis*. Flor. Suec. p. 12. *Veronica Chamædr.* Fl. Suec. p. 18. Pechlin *Theophilus bibaculus* Franckfort. 1684. *Francus de Veronica vel Theez-antem*.

(*q*) Simon Pauli *de abusu Theæ et Tabaci*. Straßburg, 1665. Lond. 1746.

(*r*) See Neumann's chemistry, by Lewis, p. 375.

(*s*) See directions for bringing over seeds and plants from the East-Indies, by that great promoter of natural history, J. Ellis, F. R. S. &c. In which particu-

But neither of these methods have succeeded generally, notwithstanding the utmost care, both in getting fresh seeds, and in securing them in the most effectual manner. The best method is to sow the ripe seeds in good light earth, at leaving Canton; covering them with wire, to prevent rats and other such vermin coming to them. The boxes should not be exposed to too much air, nor to the spray of the sea if possible. The earth should not be suffered to grow dry and hard, but a little fresh or rain water may be sprinkled now and then; and when the seedling plants appear, they should be kept moist, and out of the burning sun. Most of the plants now in England were procured by these means; and though many of the seedlings will die, yet by this kind of management we may probably succeed in bringing over the most curious vegetable productions of China, and of which they have an amazing treasure, both in respect to use, shew and variety (*t*).

The

lar directions are given, both to choose the proper seeds, and to preserve them in the best manner for vegetation. See also the naturalist's and traveller's companion, containing instructions for discovering and preserving objects of natural history, SECT. III. We may observe here, that the best method of bringing over the parts of flowers intire, is to put them in bottles of spirit of wine, good rum, first runnings or brandy. In the directions, &c. above mentioned, the learned naturalist has not recommended this easy method of preserving the parts of fructification, but in a future edition, I am informed he purposes to do it. Flowers of the *Illium Floridanum*, or starry anniseed tree, published in the last vol. of *Phil. Trans.* (LX.) were sent to him in this manner.

(*t*) Another method has succeeded with some North American seeds, by putting them into a box, not made too close, upon alternate layers of moss, in such a manner as to admit the seeds to vegetate, or shoot their small tendrils into the moss. In the passage, the box may be hung up at the roof of the cabin; and when arrived here, the seeds should be put into pots of mold, with a little of the moss also about them, on which they had lain. This method has procured us seeds in a state fit for vegetation, which had often miscarried under the preceding precautions;

The young Tea plants in the gardens about London thrive very well in the green houses in winter, and some bear the open air in summer. The leaves of many of them are from one to three inches long, not without a fine deep verdure; and the young shoots are succulent. It is therefore probable, that in a few years many layers may be procured from them, and the number of the plants considerably encreased thereby.

It may not be improper to observe here, that many exotic vegetables, like human constitutions, require a certain period before they become naturalized to a change of climate; many plants, which at their first introduction would not bear our winters without shelter, now endure our hardest frosts; the beautiful magnolia, among several others, is a proof of this observation; and we have already taken notice (SECT. V.), that the degree of cold at Pekin, sometimes exceeds ours. We have therefore reason to expect, that the Tea-tree may in a few years be capable of bearing our climate, at length thrive, as if indigenous to this country, and become an article in our exports (*u*), like the common potatoe, for which we are indebted to America, or Spain (*x*).

It

tions; and therefore might be tried at least, with Tea and other oriental seeds. In order to succeed more certainly, some of the Tea seeds, in whatever manner they may have been preserved, should be sown when the vessel arrives at St. Helena, and also after passing the tropic of Cancer, near the lat. of 30 deg. north.

(*u*) The high price of labor in this country, may prove the principal objection to this prospect. In China provisions are very cheap. Osbeck says, that a workman who lives upon plucking of Tea leaves, will scarce be able to get more than one penny a day, which is sufficient to maintain him. Voyage to China, Vol. I. p. 298.

(*x*) Gerard says in his herbal, published Ann. 1597. p. 780. Potatoes grow in India, Barbarie, Spaine, and other hotte regions, of which I planted diuers rootes (that I bought at the exchange in London) in my garden, where they flourished untill winter, at which time they perished and rotted." At this date, he adds,

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It is indeed probable that the North American summers in the same latitude with Pekin, would suit this Tree better than ours; for in China, and some parts of North America, the heat in summer is such, that vegetables make quicker and more early shoots, whereby they have time to acquire sufficient strength and firmness, before the winter commences; but in England, the tender shoots are pushed forth late, and winter soon after succeeding, they often perish, in a degree of cold much less severe than at Pekin, or in colder latitudes of North America.

“ they were roasted in the ashes; some when they be so roasted, infuse them, and sop them in wine; and others, to give them the greater grace in eating, do boile them with prunes, and so eate them. And likewise others dresse them (being first roasted) with oile, vinegar, and salt, euery man according to his own taste and liking.”

THE

T H E
M E D I C A L H I S T O R Y
O F
T E A.

P A R T II.

S E C T. I.

AS the custom of drinking Tea is become universal, every person may be considered as a judge of it's effects, at least so far as it concerns his own health; but as the constitutions of mankind, are as various as the individuals, the effects of this infusion must be different also, which is the reason that so many opinions have prevailed upon the subject.

Many who have once conceived a prejudice against it, suffer it to influence their judgment too far, and condemn the custom as universally pernicious. Others, who are no less biassed on the other extreme, would make their own private experience, a standard for the general, and ascribe the most extensive

tenfive virtues to this infufion. This contrariety of opinion has been particularly maintained among phyficians (*y*), which will ever be the cafe, while mere fuppositions are placed in the room of experiments and facts impartially related.

S E C T. II.

There are fome phyficians, however, who avoid both extremes; who without commending it or decrying it univerfally, admit it's ufe, without being infenfible to the injuries received from it. It requires no fmall fhare of difpaffionate fagacity to fix the limits of good and harm in the prefent cafe: multitudes of all ages, conftitutions and complexions, drink it freely, during a long life, without perceiving any ill effects. Others again foon experience many inconveniences from drinking any confiderable quantity of this infufion.

It is difficult to draw certain conclufions from experiments made on this herb. The parts which feem to produce thefe oppofite effects are very fugitive. We become acquainted chiefly with the groffer parts by analyfis. I made the following experiments with confiderable care, but I own they inform us not fufficiently wherein confifts that grateful relaxing fedative property, that proves to the generality of mankind fo refreshing, nor from whence it is, that others feel from this pleafing beverage many difagreeable effects. Obfervation muft inftitute us in this difficult investigation, more than fimple experiments on the fubject itfelf.

(*y*) Compare Joh. Ludov. Hannemane de potu calido in Mifcell. curios. Simon Pauli de abufu Theæ et Tabaci. Tiffot on the difeafes of literary and fedentary perfons, &c. with Waldfmick in Difput. var. argum, &c.

E X P E R I M E N T I.

I took an equal quantity of an infusion of superfine green Tea, and of common bohea Tea, made equally strong; and also the same quantity of the liquor remaining after distillation (SECT. III. 1.), and of simple water; into each of which, contained in separate vessels, I put two drachms of beef, that had been killed about two days.

The beef which was immersed in the simple water, became putrid in forty eight hours; while the pieces in the two infusions of Tea, and in the liquor remaining after distillation, shewed no signs of putrefaction, till after about seventy hours (z).

E X P E R I M E N T II.

Into strong infusions of every kind of green and bohea Tea that I could procure, I put equal quantities of salt of iron (sal martis), which immediately changed the several infusions into a deep purple color (a).

It is evident from these experiments, that both green and bohea Tea possess an antiseptic (EXPER. I.), and astringent power (EXPER. II.), applied to the dead animal fibre.

(z) See Percival's Experimental Essays, p. 119, et seq. wherein many ingenious experiments and observations are related.

(a) In this experiment, four ounces of infusion were drawn from two drachms of each kind of Tea, and one grain of sal martis added to the respective infusions. See Neumann's chemistry, by Lewis, pag. 377. Short on the nature and properties of Tea, p. 29.

S E C T. III.

Nevertheless, as I have often observed that drinking Tea, particularly the most highly flavored fine green, proves remarkably relaxing to many persons of tender and delicate constitutions, I was induced to prosecute my enquiries farther.

1. To this end I distilled half a pound of the best and most fragrant green Tea with simple water, and drew off an ounce of very odorous and pellucid water, free from oil, and which on trial (SECT. II. EXP. II.), shewed no signs of astringency.

2. That part of the liquor which remained after distillation, was evaporated to the consistence of an extract; it was slightly odorous, but had a very bitter, styptic, or astringent taste. The quantity of the extract thus procured weighed about five ounces and a half.

E X P E R I M E N T III.

a. Into the cavity of the abdomen, and cellular membrane of a frog, about three drachms of the distilled odorous water (No. 1.) were injected.

In twenty minutes, one hind leg of the frog appeared much affected, and a general loss of motion and sensibility succeeded (*b*). The affection of the limb continued for

(*b*) See Smith, Tentamen inaugurale de actione musculari. Edinb. p. 46.

four hours, and the universal torpidity remained above nine hours ; after this the animal gradually recovered it's former vigor.

- b. In like manner some of the liquor remaining after the distillation of the green Tea, (No. 1.) was injected, but this was not productive of any sensible effect.

EXPERIMENT IV.

- a. To the ischiatic nerves laid bare, and to the cavity of the abdomen of a frog, I applied some of the distilled odorous water (No. 1. and Exp. III, a.). In the space of half an hour, the hindermost extremities became altogether paralytic and insensible ; and in about an hour afterwards the frog died.
- b. In like manner I applied the liquor remaining after distillation (No. 1. and Exp. III, b.) to another frog, but no sedative or paralytic effect was observable.
- c. The extract (No. 2.) dissolved in water, and applied to the same parts under like circumstances, produced no sensible effect.

3. From these experiments the sedative and relaxing effects of Tea, appear greatly to depend upon an odorous fragrant principle, which abounds most in green Tea, particularly the highly flavored (c). This seems further confirmed by the

(c) Two drachms of this odorous water were given to a delicate person. He was soon after affected with a nausea, sickness, general lowness and debility, which continued for some hours, which he observes usually succeeds when he drinks superfine green Tea.

Smelling forcibly at the same has occasioned similar effects upon some delicate people.

practice of the Chinese, who avoid using this plant, till it has been kept at least twelve months, as they find it possesses a soporiferous and intoxicating quality when recent. (PART I. SECT. IX.)

Thus often under trees supinely laid,
 Whilst men enjoy the pleasure of the shade,
 Whilst those their loving branches seem to spread
 To screen the sun, they noxious atoms shed,
 From which quick pains arise, and seize the head.
 Near Helicon, and round the learned hill
 Grow trees, whose blossoms with their odor kill (*d*).

CREECH.

S E C T. IV.

Waving however any attempts to fix with precision, the effects of Tea from these experiments alone, let us endeavour to collect from observation likewise such facts as may enable us to judge what its effects are on the human frame, and from thence draw the clearest inferences we can, how far it is salutary or otherwise.

The long and constant use of Tea, as a part of our diet, makes us forget to enquire whether it is possessed of any me-

(*d*). Arboribus primum certis gravis umbra tributa est
 Usque adeo, capitis faciant ut sæpe dolores,
 Siquis eas subter jacuit prostratus in herbis.
 Est etiam in magnis Heliconis montibus arbos
 Floris odore hominem tetro consueta necare.

LUCRETIVS. B. 6.

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dicinal properties. We shall endeavour to consider it in both respects.

The generality of healthy persons, find themselves not apparently affected by the use of Tea: it seems to them a grateful refreshment, both fitting them for labor and refreshing them after it. There are instances of persons who have drank it from their infancy, to old age; have led at the same time, active, if not laborious lives; and who never perceived from the constant use of it any ill effect, nor had any complaint which they could ascribe to the effects of this liquor.

Where this has been the case, the subjects were for the most part healthy, strong, active, and temperate, both of one sex and the other. Amongst the less hardy and robust, we find complaints, which are ascribed to Tea, by the parties themselves. Some complain that after a Tea breakfast, they find themselves rather fluttered; their hands less steady in writing, or any other employ that requires an exact command. This probably soon goes off, and they feel no other effect from it. Others again bear it well in the morning, but from drinking it in the afternoon, find themselves very easily agitated, and affected with a kind of involuntary trembling.

There are many who cannot bear to drink a single dish of Tea, without being immediately sick and disordered at the stomach. To some it gives great pain about that part, very excruciating, and attended with general tremors. But in general the most tender and delicate constitutions are most affected by the free use of Tea; being frequently attacked with pains in the stomach and bowels; spasmodic affections; attended with pale limpid urine in large quantities; great agitation of spirits, and a proneness to be disconcerted with the least noise, hurry or disturbance.

S E C T. V.

There is one circumstance however that renders it more difficult to investigate the certain effects of Tea; which is, the great unwillingness that most people shew, to giving us a genuine account of their uneasy sensations after the free use of it; from a consciousness that it would be extremely imprudent to continue its use, after they are convinced from experience that it is injurious.

That it produces watchfulness in some constitutions, is most certain, when drank at evening in considerable quantities. Whether warm water would not sometimes do the same, or any other aqueous liquor, is not so certain.

That it enlivens, refreshes, exhilarates, is likewise well known. From all which circumstances it would seem, that Tea contains an active penetrating principle, speedily exciting the action of the nerves: in very irritable constitutions, to such a degree as to give very uneasy sensations, and bring on spasmodic affections: in less irritable constitutions, it rather gives pleasure, and immediate satisfaction, though not without occasionally producing some tendency to tremors and agitation bordering upon pain.

The finer the Tea, the more obvious are these effects. It is perhaps for this, amongst other reasons, that the lower classes of people, who can only procure the most common, are in general the least sufferers. I say, in general, because even amongst them, there are many who actually suffer much by it: they drink it as long as it yields any taste, and for the most part hot, to add to its flavor; and what the finer kinds.

kinds of Tea effect in their superiors, the quantity, and the degree of heat in which it is drank, produce in them.

It ought not however to pass unobserved, that in a multitude of cases, the infusions of our own herbs; sage, for instance, mint, baum, even rosemary, and valerian itself, will now and then produce similar effects, and leave that emptiness, agitation of spirits, flatulence, spasmodic pains, and other symptoms that are met with in people, the most of all others devoted to Tea.

S E C T. VI.

That there is something in the finer green Teas, that produces effects peculiar to itself, and not to be equalled by any other substance we know, is I believe admitted by all who have observed, either what passes in themselves, or the accounts that others give of their feelings, after a plentiful use of this liquor. Nor are the finer kinds of bohea Teas exempt from the like influence. They affect the nerves, produce tremblings, and such a state of body for the time, as subjects it to be agitated by the most trifling causes, shutting a door too hastily, the sudden entrance even of a servant, and other the like causes.

I know people of both sexes, who are constantly seized with great uneasiness, anxiety and oppression, as often as they take a single cup of Tea, and who nevertheless, for the sake of company, drink several cups of warm water, mixed with sugar and milk, without the least inconvenience.

A physician whose acquaintance I have long been favored with, and who, with some others, was present when the
preceding

preceding experiments were made at the college of Edinburgh, has a remarkable delicacy in feeling the effects of a small quantity of fine Tea. If drank in the forenoon, it affects his stomach with an uneasy sensation for several hours afterwards, and entirely takes away his appetite for food at dinner; though at other times when he takes chocolate for breakfast, he generally makes a very hearty meal at noon, and enjoys the most perfect health. If he drink a single dish of tea in the afternoon, it affects him in the same manner, and deprives him of sleep for three or four hours, through the succeeding night; yet he can socially take a cup of warm water with sugar and milk, without the least inconvenience.

It may be remarked that opium has nearly the same effect upon him as Tea, but in a greater degree; for he informs me, that when he once accidentally took a quantity of the solution of opium, it had not the least tendency to induce sleep, but produced a very disagreeable uneasiness at his stomach, approaching to nausea.

S E C T. VII.

I am informed likewise by a physician, of long and extensive practice in the city, that he has known several instances of a spitting of blood having been brought on, by breathing in an air loaded with the fine dust of Tea. It is customary for those who deal largely in this article, to mix different kinds together, so as to suit the palates of their customers in different places. This is generally performed in the back part of their shops, several chests perhaps being mixed together at the same time. Those who are much employed in this work,

work, are very often sufferers by it at length; some being seized with sudden bleedings from the lungs or from the nostrils; others attacked with violent coughs, ending in consumptions.

These circumstances are chiefly brought in sight to prove, that besides a sedative relaxing power, there exists in Tea an active penetrating substance, which cannot but in many constitutions be productive of singular effects.

An eminent Tea broker, after having examined in one day, upwards of one hundred chests of Tea, by smelling at them only, and forcibly, in order to distinguish their respective qualities, was the next day seized with a violent giddiness, head-ach, universal spasms, and loss of speech and memory. By proper assistance he recovered to a certain degree, but not totally. His speech returned, his memory in some degree, his strength never. He continued, with unequal steps, gradually losing strength; a partial paralysis ensued, then a more general one, and at length he died totally enfeebled and insensible. Whether this was owing to the Tea, may perhaps be doubted. Future accidents may possibly confirm the suspicions to be just or otherwise.

S E C T. VIII.

An assistant to a Tea broker, had frequently for some weeks complained of pain and giddiness of his head, after examining and mixing different kinds of Tea: the giddiness was sometimes so considerable, as to render it necessary for a person to attend him, in order to prevent any injury he might suffer from falling or other accident. He was bled in the arm freely,

ly, but without permanent relief; his complaint returned as soon as he was exposed to his usual employment. At length he was advised to be electrified, and the shocks were directed to his head. The next day his pain was diminished, but the day after closed the tragical scene. I saw him a few hours before he died; he was insensible; the use of his limbs almost lost, and he sunk very suddenly into a fatal apoplexy. Whether the effluvia of the Tea, or electricity was the cause of this event is doubtful. In either view the case is worthy of attention (*e*).

A young man of a delicate constitution, had tried many powerful remedies in vain, for a depression of spirits, which he labored under to a degree of melancholy, which rendered his situation dangerous to himself and those about him. I found he drank Tea very plentifully, and therefore requested him to substitute another kind of diet, which he complied with, and afterwards gradually recovered his usual health. Some weeks after this, having a large present of fine green Tea sent him, he drank a considerable quantity of the infusion for that and the following day. This was succeeded by his former dejection and melancholy, with loss of memory, tremblings, a proneness to great agitation from the most trifling circumstances, and a numerous train of nervous ailments. I saw him again, and he immediately attributed his complaints to the Tea he had drank; since which he has carefully de-

(*e*) From these instances of the deleterious effects of Tea, one might be led to suppose that the same unhappy consequences would frequently attend those who are employed in examining and mixing different kinds of Tea in China; but there the Teas are mixed under an open shed, through which the air has a free current, and thereby the odor and the dust are dissipated: but in London this business is usually done in a back room, confined on every side.

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nied himself the same indulgence, and now enjoys his former health.

I have known many other instances, where less degrees of depression, and other complaints depending upon a relaxed irritable habit, have attended delicate people for many years, and though they have had the advice of skilful physicians, yet in vain have remedies been administered, till the patient has refrained from the infusion of this fragrant exotic.

S E C T. IX.

In treating of this substance, I would not be understood to be either a partial advocate, or a passionate accuser. I have often regretted that Tea should be found to possess any pernicious qualities, as the pleasure which arises from reflecting how many millions of our fellow creatures are enjoying at one hour the same amusing repast; the occasions it furnishes for agreeable conversation; the innocent parties of both sexes it daily draws together, and entertains without the aid of spirituous liquors; would afford the most grateful sensations to a social breast. But justice demands something more. It stands charged by many able writers, by public opinion, partly derived from experience, with being the cause of many grievous disorders; all that train of distempers included under the name of nervous, are said to be, if not the offspring, at least highly aggravated by the use of Tea. To enumerate all these, would be to transcribe volumes. It is not impossible but the charges may be partly true. Let us examine the case with all possible candor.

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The effect of drinking large quantities of any warm aqueous liquor, according to all the experiments we are acquainted with, would be, to enter speedily into the course of circulation, and pass off as speedily by urine or perspiration, or the encrease of some of the secretions. Its effects on the solid parts of the constitution would be relaxing, and thereby enfeebling. If this warm aqueous fluid were taken in considerable quantities, its effects would be proportionable, and still greater, if it were substituted instead of nutriment.

That all infusions of herbs, may be considered in this light, seems not unreasonable. The infusion of Tea, nevertheless, has these two particularities. It is not only possessed of a sedative quality (SECT. III. EXP. III. IV.), but also of a considerable astringency (SECT. II. EXP. II.); by which the relaxing power ascribed to a mere aqueous fluid, is in some measure corrected. It is on account of the latter, perhaps less injurious than many other infusions of herbs, which, besides a very slight aromatic flavor, have very little if any stypticity, to prevent their relaxing debilitating effects.

So far therefore Tea, if not too fine, if not drank too hot, nor in too great quantities, is perhaps preferable to any other vegetable infusion we know. And if we take into consideration likewise, its known enlivening energy, it will appear that our attachment to Tea, is not merely from its being costly or fashionable, but from its superiority in taste and effects to most other vegetables.

S E C T.

S E C T. X.

It may be of some use in our enquiries to consider its effects where it has been long used, and universally. Of Japan we know little at present: of China we have more recent accounts; from these it appears, that Tea of some kind, coarser or finer, is drank by all degrees of people, and copiously; that the general provision of the lower ranks especially is rice, their beverage Tea. The better kind of people drink Tea, but they live likewise on animal food, and live freely.

Of their diseases we know but little, nor what effects Tea may have in this respect. They never bleed on any account. The late Dr. Arnot, of Canton, a gentleman who did his profession and his country honor, and was in the highest estimation with the Chinese, I am informed was the first person, who could ever prevail upon any of the Chinese to be blooded (*f*), be their maladies what they might. It would appear from hence, that inflammatory diseases were not extremely common; otherwise a nation who seem so fond of life as the Chinese are reputed to be, would by some means or other have admitted of this almost only remedy in such cases. May we infer from hence, that inflammatory diseases are less frequent in China, than in some other countries, and that probably one cause of this may be the constant and liberal use of this infusion? perhaps if we take a view of the state of

(*f*) See Du Halde's history of China, V. III. p. 362. He observes here, that bleeding is not entirely unknown amongst the Chinese.

diseases, as exactly described a century ago, and compare it with what we may observe at present, we may have a collateral support for this suggestion. If we consider the frequency of inflammatory diseases in Sydenham's time, who was both a consummate judge of these diseases, and described them faithfully, I believe we shall find they were then much more frequent than they are at present; at least I have been informed so by some able and observing people of the faculty, who mostly agree, that genuine inflammatory diseases are much more rare at present, than they were at the time when Sydenham wrote. It is true, this disposition, admitting it be fact, may arise from various causes; amongst the rest, it is not improbable but Tea may have it's share.

S E C T. XI.

Before the use of Tea, the general breakfast in this country consisted of something more substantial; milk in various shapes, ale and beer, with toast, cold meat, and other additions. The like additions with sack, and the most generous wines, found their way amongst the higher orders of mankind. And one cannot suppose but that such a diet, and the usual exercise they took, would produce a very different state of blood and other animal juices, from that which Tea, a little milk or cream, and bread and butter affords.

It was not the breakfast only that seems to have contributed its share towards introducing a material alteration in the animal system, but the subsequent regale likewise in the afternoon. Tea is a second time brought before company; it is drank by most people, and often in no very small quantities.

tities. Before the introduction of this exotic, it was not unusual to entertain afternoon guests in a very different manner; jellies, tarts, sweetmeats; nay, cold meat, wine, cyder, strong ale, and even spirituous liquors under the title of cordials, were often brought out on these occasions, and perhaps carried to a culpable excess, and much to the injury of individuals.

This kind of repast would tend to keep up the natural inflammatory diathesis, which was the result of vigor, and a plenitude of rich blood; as well as favor diseases originating from such causes. It seems not unreasonable therefore to suppose, that as the diet of our ancestors was more generous, their exercises more athletic, and their diseases more generally, the produce of a rich blood, than are observable in the present times; that these debilitating effects before mentioned may in part be attributed to the use of Tea, as no cause appears to be so universal and so probable.

S E C T. XII.

If these suggestions are admitted, they will assist us in determining when and to whom the use of Tea is salutary, and to whom it may be deemed injurious. Those for instance, who either from a natural propensity to generate a rich inflammatory blood, or from exercise or diet, or climate, or all together, are disposed to be in this situation: to these the use of Tea would seem rather beneficial, by relaxing the too rigid solids, and diluting the coagulable lymph of the blood, as a very sensible and ingenious author very justly styles it (*g*).

(*g*) Philosophical Transactions, Vol. LX. 1770. p. 368, & seq.

There are idiosyncrasies, certain particularities, which are objections to general rules. There are for instance men of this temperament, strong, healthy, vigorous, and with not only the appearance, but the requisites of firm health, to whom a few dishes of Tea would produce the agitations familiar to an hysteric woman: but this is by no means general: in common they bear it well, it refreshes them, they endure fatigue after it, as well as after the most substantial viands. Nothing refreshes them more than Tea, after lasting and vehement exercise. To such it is undoubtedly wholesome, and equal at least, if not preferable, to any other kind of regale now in use.

But if we consider what may reasonably be supposed to happen to those, who are in the opposite extreme of health and vigor, that is, the tender, delicate, enfeebled, whose solids are debilitated, their blood thin and aqueous, the appetite lost or depraved, without exercise, or exercising improperly; in short, where the disposition of the whole frame is altogether opposite to the inflammatory; the free and unrestrained use of this infusion, and such accompaniments, must unavoidably contribute to sink the remains of vital strength still lower.

Between these two extremes there are many gradations; and every thing else being alike, Tea will in general be found more or less beneficial or injurious to individuals, in proportion as their constitutions approach nearer to these opposite extremes. To descend into all the particulars would require experience and abilities, more than I can boast. Suffice it to say, that except as a medicine, or after great fatigue, large quantities are seldom beneficial, nor should it ever be drank very hot; and, as hath been already mentioned, the finer
Tea,

Tea, the green especially, is more to be suspected than the common or middling kinds.

S E C T. XIII.

The experiments and observations hitherto related, render it evident, that Tea possesses a fragrant volatile principle, which in general tends to relax and enfeeble the system of delicate persons, particularly when it is drank hot, and in large quantities. I have known many of this frame of constitution, who have been persuaded on account of their health, to deny themselves this fashionable infusion, with great benefit (SECT. VIII.). Others who have found their health impaired by this indulgence, are induced to continue it for want of a proper substitute, especially for breakfast.

But if such cannot wholly omit this favorite regale, they may certainly take it with more safety, by boiling the Tea a few minutes, in order to dissipate this fragrant principle (SECT. III, IV.) which is the most noxious; and extract the bitter, astringent and most stomachic part (SECT. II. III.), instead of preparing it in the usual manner by infusion.

An eminent physician in the city, frequently experiencing the prejudicial effects of Tea, by drinking it in the usual form, was induced from reading a dissertation upon this subject, published some time since at Leyden (*b*), to try the infusion prepared after another manner. He ordered the Tea to be infused in hot water, which after a few hours he caused to be poured off, stand over night, and to be made warm again in

(*b*) Siftens observationes ad vires Theæ pertinentes. Lugd. Batav. 1769.

the morning for breakfast. By this means he assures me he can take without inconvenience near double the quantity of Tea, which, when prepared in the usual method, would formerly have produced many disagreeable nervous complaints.

The same end is obtained by substituting the extract of Tea (SECT. III. 2.) instead of the leaves. I have frequently tried it in the form of Tea, by dissolving it in warm water, and to me it is a pleasant stomachic bitter; as the fragrantcy of the Tea is in this case dissipated, the nervous relaxing effects, which follow the drinking it in the usual manner, would be in great measure avoided. This extract has been imported into Europe from China, in flat round dark colored cakes, not exceeding a quarter of an ounce each in weight, ten grains of which, dissolved in a sufficient quantity of water, might suffice one person for breakfast. It might also be made here without much expence or trouble (See SECT. III. 2.).

An infusion of chamomile flowers, or any bitter stomachic, taken after drinking Tea, sometimes prevents the relaxing effects of the foreign herb. The bitter infusions are also more beneficial when drank cool.

It is remarkable, that in all the forms which Du Halde relates, for administering Tea as a stomachic medicine among the Chinese, it is ordered to be boiled for some time, or prepared in such a manner, as to cause a dissipation of its fragrant perishable flavor, which practice, as it seems consonant to experiments here (SECT. II. III.), may probably have taken its rise in China, from long experience and repeated facts.

S E C T.

S E C T. XIV.

Perhaps it will be deemed rather foreign to an essay upon this subject, to take a concise view of the manners, or morals if the reader pleases, of the Chinese, as we have done of their diseases; but as those who are best acquainted with human nature, seem to ascribe even to their food, and way of life, as well as to their climate and education, certain propensities at least to vice and virtue, it may be of use to draw what light we can in these respects, from the character of a people, who have used the infusion of Tea for successive generations.

They are in general described to be a people of moderate strength of body, not capable of much hard labor, rather feeble when compared with the inhabitants of some nations, excelling in some minute fabricks and manufactures, but exhibiting no proofs of elevated genius in architecture, either civil or military. They are described to be pusillanimous, cunning, extremely libidinous, and remarkable for dissimulation and selfishness (*i*), effeminate, revengeful and dishonest (*k*).

It would be unjust to ascribe all these qualities to their manner of living: other causes have undoubtedly their share: but it may be suspected, that the manner of life, or kind of diet, that tends to debilitate, virtually contributes to the encrease of the meaner qualities. Where force of body is wanting, cunning often supplies its place; and if not regu-

(*i*) See Anson's voyage round the world, 8vo. p. 366, and many later authorities.

(*k*) See likewise Du Halde's history of China, Vol. II. p. 75, 130 et seq.

lated by other principles, it would discover its effects more universally; and thus will take place whether the debility is natural, or acquired by a diet that enfeebles the body. That there is a probity, fortitude, generosity in female minds, not inferior to the like qualities possessed by the other sex, is most certain, but that it is generally so, may perhaps be doubted.

Whether the present age exhibits as many instances of superior excellence as the preceding, is beyond my abilities to determine: that it is tarnished more than some others with one vice at least, seems generally confessed: and it may perhaps be a problem not unworthy consideration, whether the general use of Tea, may not gradually encrease the disposition. For whatever tends to debilitate, seems for the most part to encrease corporeal sensibility. The same person who in health, does not start at the firing of a cannon, shall be extremely disconcerted, when sunk by disease to the border of effeminacy, at the sudden opening of a door. Desire is not always proportioned to bodily strength: it may be strongest when the corporeal strength is at the lowest ebb; it is often found so; and therefore another reason occurs, why the general use of Tea ought not to be considered, as amongst the most indifferent of all subjects.

S E C T. XV.

From what has been said upon this subject, it will probably appear, that children and very young persons in general, should as much as possible be deterred from the use of this infusion. It weakens their stomachs, impairs the digestive powers, and favors the generation of many diseases. We seldom perceive the rudiments of scrophulous diseases, so often

as in the weak feeble offspring of the inhabitants of towns; and whose breakfast and supper often consists of the weak runnings of ordinary Tea, with its usual appurtenances. In better families experience has directed to a better choice; amongst many it loses ground, from a knowledge of its injurious effects. It ought by no means to be the common diet of boarding schools; if it be allowed sometimes as a treat, they should at the same time be informed, that the constant use of it would be injurious to their health, strength, and constitution in general.

S E C T. XVI.

Thus far I have chiefly endeavoured to trace the effects of Tea as a part of our diet. In medicine it has at present but very little reputation amongst us. It is even scarcely ever recommended as a part of the furniture of a sick chamber; it is seldom mentioned even as a gentle diaphoretic: in cases, however, where it is necessary to dilute and relax, to promote the thinner secretions, it at least promises as much advantage as most other infusions. For besides its other effects, it seems to contain something sedative in its composition (SECT. III. EXP. III. IV.), not altogether unlike an opiate; like this class of medicines, it mitigates uneasiness, perhaps more than any other merely aqueous infusion: and like very small doses of opium, it sometimes prevents rest, and gives a temporary flutter to the spirits.

Where therefore large quantities of the infusion must be taken, to produce or support a considerable diaphoresis, a decoction of Tea, or a strong infusion, may be administered with great propriety, particularly in inflammatory complaints;

the sedative power of Tea, assisted by the diluting effects of warm water, generally producing a diaphoresis, without stimulating the system. The Chinese most commonly give it as a medicine in decoction, in a variety of diseases: but if the infusion were drawn from a large proportion of fine Tea, and soon poured off, that the finest part may be procured, and drank warm, it would seem preferable as an attenuant and relaxant.

I have more than once given fine green Tea in substance with some diluting vehicle, and observed the same effects nearly, as are produced from taking the infusion. Thirty grains of this kind of Tea powdered, taken three or four times, at as many hours interval, generally relaxes the solids, diminishes heat and restlessness, and induces perspiration. Such a dose as produces a slight nausea, which this quantity usually does, more certainly induces a perspiration, and a mitigation of the symptoms accompanying inflammatory complaints. If this dose be doubled, the nausea and sickness are encreased, and a disagreeable pain or load is felt for some time about the region of the stomach, which usually goes off with a laxative stool.

S E C T. XVII.

It is said that in Japan and China, the stone is a very unusual distemper, and the natives suppose that Tea has the quality to prevent it. So far as it softens and meliorates the water, it may certainly be of use (*l*). We may also observe

(*l*) By long boiling, water is certainly freed from some of the earthy, and saline substances it may contain, and thereby rendered considerably softer; but it is by no means altered in these respects by infusing with Tea. See Percival's experiments and observations on water, p. 27 et 33.

here,

here, that every solvent is capable of taking up a limited quantity only of the solvend, and when fully saturated with it, is incapable of suspending it long; hence it is plain, that the quantity of the stony matter carried off, must be greater when the urine is encreased in quantity, and has not been too long retained in the bladder: and therefore as Tea is diuretic, it may in this view prove lithontriptic.

Tea, we have already observed, contains an astringent antiseptic quality (SECT. II. EXP. I. II.). It likewise possesses no inconsiderable degree of bitterness; and as the *uvæ ursi*, and other bitters have mitigated severe paroxysms of the stone, may not Tea prove serviceable also by its antacid quality?

It is an observation I have often had occasion to make, that people after violent exercise, or coming off a journey much fatigued, and affected with a sense of general uneasiness, attended with thirst and great heat; by drinking a few cups of warm Tea, have generally experienced immediate refreshment. It also proves a grateful diluent, and agreeable sedative, after a full meal, when the stomach is oppressed, the head pained, and the pulse beats high (*m*).

S E C T. XVIII.

I shall finish these remarks with some reflections on this herb, considered in another light.

As luxury of every kind has augmented in proportion to the encrease of foreign superfluities, it has contributed more or less its share towards the production of those low nervous diseases,

(*m*) Le Compte's memoirs and observations, p. 227. Home's *Principia Medicinæ*, p. 5. Percival's experimental essays, p. 130. See also Tissot on the diseases of literary and sedentary persons, p. 145.

which

which are now so frequent. Amongst these causes, excess in spirituous liquors is one of the most considerable; but the first rise of this pernicious custom is often owing to the weakness and debility of the system, brought on by the daily habit of drinking Tea (*n*); the trembling hand seeks a temporary relief in some cordial, in order to refresh and excite again the enfeebled system; whereby such almost by necessity fall into a habit of intemperance, and frequently intail upon their offspring, a variety of distempers, which otherwise would not probably have occurred.

S E C T. XIX.

Another bad consequence resulting from the universal custom of Tea drinking, particularly affects the poor laboring people, whose daily earnings are scanty enough to procure them the necessary conveniences of life, and wholesome diet. Many of these, too desirous of vieing with their superiors, and imitating their luxuries, throw away their little earnings upon this fashionable herb, and are thereby inconsiderately deprived of the means to purchase proper wholesome food for themselves and their families.

I have known several miserable families thus infatuated, their emaciated children laboring under various ailments depending upon indigestion, debility, and relaxation. Some at length have been so enfeebled, that their limbs have become distorted, their countenance pale, and a marasmus has closed the tragedy.

(*n*) See Percival's experimental essays, p. 126.

These effects are not to be attributed so much to the peculiar properties of this costly vegetable, as to the want of proper food, which the expence of the former deprived these poor people from procuring. I knew a family of this stamp, consisting of a mother and several children, whose fondness for Tea was so great, and their earnings so small, that three times a day, as often as their meals, which generally consisted of the same articles, they regularly sent for Tea and sugar, with a morsel of bread to support nature; by which practice they daily grew more enfeebled; thin emaciated habits and weak constitutions characterised this distressed family, till some of the children were removed from this baneful nursery, who afterwards acquired tolerable health.

An ingenious author observes that as much superfluous money is expended on Tea and sugar in this kingdom, as would maintain four millions more of subjects in bread (o). And the author of the farmers letters calculates that the entertainment of sipping Tea costs the poor each time as follows:

	d.
The tea	$\frac{3}{4}$
The sugar	$\frac{1}{2}$
The butter	1
The fuel and wear of the Tea equipage	$\frac{1}{4}$
	2 $\frac{1}{2}$

When Tea is drank twice a day, the annual expence amounts to 7l. 12s. a head; and the same judicious writer estimates the bread necessary for a laborer's family of five persons, at 14l. 15s. 9d. per annum (p), by which it appears, that the yearly expence of Tea, sugar, &c. for two persons, exceeds

(o) Essays on husbandry, p. 166.

(p) Vol. I. p. 202 and 299.

that of the necessary article of bread, sufficient for a family of five persons.

S E C T. XX.

It appears also from a moderate calculation, that three million pounds of Tea are annually consumed in England; and domestic experience teaches us, that with each pound of Tea, ten pounds of butter at least are consumed. Hence the consumption of butter with this injurious aliment, if aliment it may be called, amounts annually to the amazing quantity of thirty millions of pounds. It is likewise to be premised, that at least five gallons of milk, are necessary to procure one pound of butter (*q*). This being granted, we may conclude farther:

Suppose one gallon of milk with bread, would suffice three laboring people for breakfast and supper, and that these meals constitute half of their food, it follows, that from this fashionable custom of Tea drinking, this kingdom cannot supply food for so many people as it otherwise could, were the inhabitants to live in a more simple manner, by at least one million. But supposing we allow half a million for the bread eaten with the milk, and for the uses of the milk after the butter has been taken from it, the deficiency still amounts to the amazing number of half a million of people!

(*q*) Compare Halleri Elem. Phys. T. 7. P. II. p. 33, 34.

